Page 6 Publishing's

NEW ATARI USER

The Resource for the ATARI CLASSIC and the ATARI ST

Issue 74 - October/November 1995 £2.50

FOR THE ATARI CLASSIC

- ***ONE TWO EIGHT***
  Add dramatic special effects to your programs with these routines
- ***IOCB's***
  Not difficult when you know how
- ***BEHIND THE SCENES***
  A look at organising for a show like AMS

PLUS REVIEWS OF NEW ROMS FROM ATARI!

FOR THE ATARI ST

PD ROUNDUP

visits Star Trek and The X-Files and delves further into the unknown!



PLUS ... CES UPDATE ... CHOOSING A PRINTER ... CULTS ... ROBOMASH REVIEW ...

This issue's ....

Thanks

Les Ellingham puts it all together and fills up the gaps but the real thanks goes to the following who made this issue possible

Sandy Ellingham who takes care of all the office work, advertising and mail order

For their regular contributions

John S Davison **Allan J. Palmer**
Paul Rixon **Stuart Murray**
Ann O'Driscoll

Ann O'Driscoll has sent us in so much stuff, and there's more to come, that I though it was about time she was elevated to 'regular contributor' status!

For their contributions this issue

John Foskett **Dean Garraghty**
Avram Dumitrescu **Joel Goodwin**
Andy Guillaume

*Special thanks this issue to **John Foskett** who has seen almost all of his big batch of contributions in print, to **Joel Goodwin** for submitting his commercially released game The Citadel and to **James Mathrick** for sending in a great bunch of stuff that almost made it to this issue but for lack of space. It should be in the next, James!*

Some of these folk have supported us from almost the beginning and without them we would not be here. Some are having articles published for the first time. All are to be thanked for sharing their enthusiasm with all who read New Atari User

HOW IT'S DONE

PAGE 6 shows just what you can do with your Atari. NEW ATARI USER has always been created entirely with Atari equipment, initially on the XL but more lately with a Mega ST and other stuff, who needs PC's or Macs! Hardware includes a Mega ST2 (upgraded to 4Mb), SM125 Monitor, Supra 30Mb Hard Disk, a HP Laserjet III, Citizen 124D printer, Philips CM8833 monitor, 130XE, a couple of 1050 disk drives, 850 interface, NEC 8023 printer. Principal software used is Protext and Fleet Street Publisher 3.0. Other software includes Kermit, TariTalk, Turbo Basic and various custom written programs on the XL/XE. Articles submitted on XL/XE disks are transferred across to the ST via TARITALK. Programs are coded on the XE and printed out directly for pasting in after the typesetting is completed. All major editing is done with Protext and pages are laid out with Fleet Street Publisher. Each page is output directly from Fleet Street to a HP Laserjet III which produces finished pages exactly as you see them. All that is left is to drop in the listings and photos.

Well, it's not quite as easy as that but you get the idea!

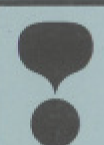
Inspiration

Kathy Mattea continues to be the (almost) sole inspiration for this issue with a CD entitled Time Passes By. It has one of those songs that touch a part of me and get elevated to the Hall of Fame of the finest songs ever written. The song in question is Asking Us To Dance by Hugh Prestwood. I don't know what it is but it has the power to evoke a response even after dozens of plays. I would have liked to report on a new CD by John Prine, his first in four years, but it will have to wait until Christmas pressie time. Life without music is hard indeed!

CONTRIBUTIONS

Without contributions from its readers, NEW ATARI USER would not be possible. PAGE 6 welcomes and encourages its readers to submit, articles, programs and reviews for publication. Programs must be submitted on disk or cassette, articles should wherever possible be submitted as text files on disk. We seek to encourage your participation and do not have strict rules for submissions. If something interests you, write a program or article and submit it!

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REGULARS

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REVIEWS

The next issue of NEW ATARI USER is due to be published on 30th November
Editorial copy date is 31st October

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A disk containing all of the 8-bit programs from each issue of NEW ATARI USER is available either separately or on subscription. Single price £2.95 per disk, a disk subscription saves you almost £8 a year. Subscription rates (6 issues)

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Editorial

AMS '95

Note that photocopies of the voucher opposite will be accepted, so there is no need to spoil your magazine

LISTINGS CRACKED?

Last issue the program listings were still not right with lines here and there hard to read. It looks okay when it goes off to the printers but I have no control over the exposure of the plates and the amount of ink laid down and don't know until the magazine is received from the printers what the result will be.

The intention behind printing the listings in the format you have seen for many years is that you get in the magazine exactly what you see on the screen, thus making it easier to spot mistakes. When you can't read what is in the magazine, however, the system doesn't work! This issue I have gone back to a method of printing listings that we used to use over 10 years ago. It takes a little bit of working out but you should find it much easier to type in the programs. The system simply identifies inverse and control characters and gives you a key to allow you to type them in. Although you can't see exactly what you are supposed to be typing, the Typo codes will ensure that you get each line right.

Hopefully, the problems of the last few issues are now solved but if you have any comments please let me know.

CONTRIBUTORS SQUEEZE TIPSTER!

We have had some excellent contributions in recent months and I thank all of those who have sat down and made the effort to share their experiences and knowledge with other Atari users. There are some great articles this issue but one of the penalties was that I had to squeeze out the Tipster. The column was completed but I couldn't find three pages to drop to fit him in. Never mind, you can rest assured that The Tipster will be back with a vengeance next issue.

My request for commercial releases to use as Disk Bonuses was taken up by Joel Goodwin whose program The Citadel appears this issue and I thank him greatly for permission to use this. There are, however, hundreds of commercial releases that are now gone forever and will not see the light of day again unless the authors allow us to use them. If you know the folks that used to write programs for English Software, Red Rat, Zeppelin or any of the dozens of small companies that sprang up over the years, have a word and let them know that they can get their work seen once more.

WHERE DID YOU GO?

Whilst the contributors have been busy the readers seem to have fallen a little quiet. The long hot summer seems to have taken its toll as we had one of the quietest Augusts ever with only a few phone calls, a few orders and fewer than usual renewals. Now that the weather has turned a few more renewals are trickling in but, as I have said many times before, we need your enthusiastic support to make it all worthwhile. If you did not renew then you obviously won't be reading this, but if you have friends who are Atari owners give them a call and make sure that they know about New Atari User and that their subscriptions are up to date.

There is still a great deal of interest and support for the Atari Classic but we have to keep punching the message home that we all have to work together to ensure a bright future.

Les Ellingham

Mailbag



Not so hot for Mailbag!

The hot August weather seems to have made Mailbag wilt a little this time. Not only were there fewer letters than of late but I was late in sending them to Allan and he couldn't manage to get enough free time to get the column together in time for the deadline. So, this time it's still Allan Palmer's Mailbag, but with me as guest compiler. The format might be slightly different but, as always, it is your views and opinions that are being expressed. Read on and write in, let's make Allan's keyboard smoke next issue!

Les Ellingham

WHOOPS!

Let begin with an apology to Brad Rogers who writes ...
"I wish to register a complaint! Well, sort of. In a letter of mine printed in Issue 73, all references to the frequency of electrical mains voltages were printed as MHz. This is incorrect and should be Hz.
I would be grateful if a correction could be printed. Having just checked the letter I sent to yourselves, all frequencies are given as Hz. How that M crept in I have no idea, whatsoever."

❢ *Sorry, Brad. Allan has admitted to inadvertently changing your Hz to MHz and apologises. It is strange how when typing up copy a mistake made once is often repeated several times, the brain seems to latch on to the first mistake and carry it through. Good job I wasn't compiling the last column, as Hz to me only means a car rental company!*

NEW FORMAT RULES, OK!

Jason Kendal of Thurlby, Lincs has written many times before and now comes to our defence ... "Pleased to see a large Mailbag in Issue 72. Just a note to support the current format, after reading Roger Lacey's letter. I believe that the A5 magazine is still an excellent read. I suspect most Atari Users no longer type in listings any more and subscribe on disk (as it's very reasonable), and if not they can send a SAE for a copy of the listings if required. I have both STE and XE and now no longer use the ST at all. If I did I would carry on subscribing to one of the mainstream ST mags such as ST format. I still like to keep up to date with the world of Atari, but I feel that Page 6 should now solely concentrate on the beloved 8-bit.
Keep up the good work."

❢ *Thanks for the support, Jason. You are probably right when you say that most readers do not type in the listings but there are still a lot that do and we have received a number of requests to keep listings in the mag from those who subscribe on disk. Having a printed listing is helpful to those who write their own programs, as a listing can almost be read as an article if you are familiar with programming. It can be fun, and can solve a few problems, looking down a listing and trying to figure out how it works.*

ATARI FUTURE

Bryan Zillwood from Southampton sent in a few more tips for Zork and has some questions about transferring tapes to disk but starts his letter off with ...



"While watching Blade Runner on TV the other day I noticed a brief shot of a prominent neon Atari (Fuji) logo. The film is set in the year 2020 so surely this means that Atari Corp. will finally be getting their act together. Perhaps the Jaguar won't be the flop it now appears, or maybe they'll resurrect the 130XE!"
Bryan goes on to ask
"Could you ask if anyone has been able to transfer the following games from tape to disk. I have tried using Transdisk IV and Howfen Tape to Disk utility but I have had no success with either:
Ace of Aces
Football Manager (I have tried the solution in Issue 68's Mailbag but it doesn't seem to work)
Head Over Heels (It loads okay at first but then tries to load further stages from cassette)
Spy v Spy Trilogy (as Head Over Heels, they load but try to read further stages from tape)
Superman
Tank Commander
Tomahawk"

❢ *Thanks for the extra Zork tips, Bryan, which will find their way into The Tipster's column this issue or next. The Blade Runner sequence is quite a famous use of the Atari logo and Atari themselves were quite chuffed to have it included. As to whether it means Atari will be around in 2020 I am not sure, after all the film 2001: A Space Odyssey has a passenger shuttle going to the moon run by Pan Am, and where are they now? I would have put more money on Pan Am surviving than Atari. If Atari makes it to 2020, I'll eat my pension book!*
On the tape to disk problems it is over to our readers for their solutions. If you have the answer to any of the above let us know right away to put Bryan out of his misery. Transferring tapes to disk ought to be a big topic, since there are still plenty of games available on tape but few on disk. If you need help on particular tapes, let us know.

MORE TAPE PROBLEMS

While we're on the subject of tape to disk transfer, I had a letter from long time US subscriber Ron Hoffman many moons ago in which he said that he has never been able to get Transdisk to work on a number of tapes that he has purchased from the UK. Ron asked whether I could transfer the tapes over for him but I have never found the time and don't have copies of some of the games. My apologies to you, Ron, for seeming to ignore your letters but let's see if we can put things right with help from our readers.
If you have been able to to transfer any of the following to disk, send us a copy of the disk. I will pass on a compilation disk to Ron and return your original disks. Here is the list: Milk Race, Arkanoid, Storm, Heartache, Twilight World, Universal Hero, Thunderfox, Little Devil, Henry's House, Feud, Bounty Bob Strikes Back and Speed Hawk.

ATARI USER TOOLKIT

Regular contributor John Foskett has some help with the Atari User Toolkit ... "In Mailbag from Issue 73, Mick 'WACO' Tomlin speaks of transferring the old Atari User Toolkit from cassette to disk in answer to the plea of Brian Arnold in Issue 70. I had no idea that Toolkit had become so rare. I have Toolkit on disk and always use it in connection with Atari BASIC. I use Toolkit with a RAM DOS utility which was originally a type-in listing in one of the old Atari User magazines. This utility modifies DOS to call it from RAM after its initial loading. Toolkit with RAM DOS work very well together.
When booted, the Toolkit master disk presents a menu giving an introduction, instructions on how to use the Toolkit commands with the option to print them and to prepare a work disk. It pre-



pares a work disk by first formatting it and writing DOS.SYS, DUP.SYS and finally by writing Toolkit as AUTORUN.SYS file to the disk. If necessary, I will forward a copy of the Toolkit master disk to Les for distribution.

Also in Issue 73's Mailbag, Brad Rogers wrongly states the mains electricity supply frequencies as MegaHertz (MHz) instead of Hertz (Hz) which may cause confusion. The prefix 'Mega' literally means one million times. The frequency of an AC mains electricity supply is typically 50Hz/60Hz which means 50/60 cycles per second. 50Mhz/60Mhz is 50/60 million cycles per second which is actually in the VHF range, a bit lower than the FM transmission band!"

Thanks for the information on the Toolkit, John. Any interest in us distributing the disk version? Our apologies to Brad Rogers have already been voiced earlier, but your additional comments are quite interesting. Wouldn't it cut down the electricity bills if you could just tune the fridge in over the air!

HIGH DENSITY PROBLEMS

Brian Arnold was pleased to see a response to an earlier query last issue from M. Tomlin but goes on to say .... "I should be glad to send him a copy of the Atari User Toolkit on tape for him to attempt to convert if only I knew where to send it. You are welcome to pass on my address and/or phone number to him, or suggest any other means of contact"

Sorry about not giving M. Tomlin's address but we are never sure whether it is right to publish correspondent's addresses unless they have specifically asked us to do so. If you want to get in touch with someone from Mailbag where there is no address, you can always send whatever you want to us with a request that it be passed on and we will happily mail it on to the person concerned. If you write to Mailbag offering help with anything and do not mind your address being published, please make it quite clear in your letter that your address can be included.

Brian goes on with a little problem .... "I recently bought, at a car boot sale, a quantity of disks which were in boxes marked Double Density. On opening the boxes I found that the disks themselves were labelled High Density. They all appear to be brand new, and of a good, well-known make. The only trouble is that I cannot use them! Attempting to format only produces a permanent grinding noise from my poor old 1050, and after several minutes I gave up and switched off. I tried four disks at random, all with the same result. Any ideas?"

I always understood that the Atari could only use single or double density disks but the disks we are currently using for the Issue disks and Library are Quad Density, 96 tracks per inch, soft sectored and they work fine. I believe the key words are 'soft sectored' which means that the arrangement of the sectors is not fixed and can be changed by a formatting program on any computer. It could well be that your disks are pre-formatted for use on a PC and that the sectors are fixed. Not having PC experience I cannot state this as gospel but I am sure someone knows the answer and will tell us next time.

REACH FOR THE STARS

Johnny Chan dropped us a line to hope that everyone liked his Stars Database that was the Disk Bonus in Issue 72 but has pointed out a small bug which "only affects option 7, Surname Search. To fix this, load DATABASE.TUR and on line 3440 modify with the following:

```
3440 TRAP 3390: IF
NAME1$(K,K) =" " THEN
GOTO 3460
```

I'm very, very sorry for this problem. My program did go through a month of testing, not just by me, but a few friends as well. If there is any interest in a version 2 containing more birthdays, then I will consider finding more birthdays although it's not easy finding new ones. If anyone is finding difficulty modifying the creator program, please write to me and I will give you more information, but please enclose a stamped addressed envelope.

For those people with PC XFORMER 3.0, the Stars Database works fine on it. My hint is to select ATARI 800XL mode, as the ATARI 130XE mode is a bit slow."

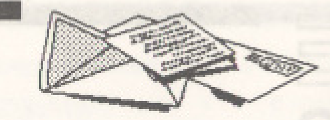
Thanks for the correction, Johnny. Don't worry about the odd bug, how do you think all those PC consultants manage to make such a good living? If you want to write to Johhny, you can find his address in the instructions for The Stars Database on the Issue 73 disk.

WHITHER ANG?

To conclude Ignacio Montoya from Spain asks for information on ANG Software ... "I ordered the game Miecze Valdgira from ANG Software of Holland some months ago. As I haven't has any answer from them, I'm already asking myself what could have happened. Is ANG Software still alive? I'll be very grateful if one of your readers or one of the ANG group could give me an answer."

Let us know if you have, or haven't, heard from ANG recently or can give Ignacio any information.

Well, that's it this time. The fruits of a long, hot (hot!) summer holiday which kept most folks away from their computers. It's cooler now and the nights are drawing in so it's time for you to think of something interesting to send to Mailbag. Get out the word processor or, if you still haven't got yourself a printer, the trusty old biro and drop us a line on anything interesting to do with the Atari or computing in general. Allan has had a rest now and I am sure he is dying to get his keyboard all steamed up for the next issue.



Air your views on all things Atari or help your fellow users with their queries - even ask for help yourself if you want. It's all interesting, if only you write it down. Here's the address:

MAILBAG
NEW ATARI USER
P.O. BOX 54, STAFFORD
ST16 1TB



CES VERSION III

John Foskett has enhanced his excellent Colour Extension Subroutine and has expanded the documentation so that your own programs can now look even better

The Colour Extension Subroutine or CES was written as an extension to mode zero, to provide a colourful screen for displaying text. Each mode zero line and the characters printed upon each line can be coloured independently. However, the rules for mode zero must still apply, where the character colour is merely a different brilliance of the line colour that they are printed on.

For keyboard entry, a flashing cursor is provided, where the flash rate and the flash pattern can be altered as required. All inverse characters flash along with the cursor to enable the use of flashing prompts, titles, warnings, etc. A means of turning off the screen has been included to allow a tidy professional appearance whilst printing to screen. When the screen is off, only the coloured lines remain, all the text being invisible. A keyboard lock is provided to ensure that only uppercase characters can be entered from the keyboard which may be enabled or disabled as required. Additionally, the attract mode and the Control-1 stop-start toggle are disabled and a lined screen is provided for clarity of text.

CES is a machine code program that is VBI and DLI driven, therefore its operation is completely independent of Basic. CES makes use the unused page zero registers (203-209) three of which interface with Basic to enable it to be controlled. CES consists basically of four machine code routines stored as relocatable machine code strings. They are the VBI, the DLI and the two colour data loading routines. The modified display list is also stored in the form of a string. CES uses only the first 48 locations of page 6 to store the colour data, the rest being left free for other use.

THE COLOURS

The location in page 6 for the colour of line 0 is 1536, for line 1 is 1537, up to 1559 for line 23. The location for the colour of the characters on line 0 is 1560, the characters on line 1 is 1561, up to location 1583 for the characters on line 23. Since the colour data is stored in RAM as memory dependent code, changing the colours is simply a matter of loading different values into the appropriate locations. This can be achieved using one of the colour data loading routines via a USR command or by simply POKEing them directly from Basic.

THE KEYBOARD LOCK

CES uses location 203 to control the keyboard lock. When this location (203) contains a zero, the keyboard lock is disabled, but when it contains non-zero values, the keyboard lock is enabled. The keyboard lock ensures that the keyboard is locked into the uppercase mode even if the CAPS key or the inverse key is accidentally pressed, in effect, disabling both keys. When the keyboard lock is enabled, all lowercase and inverse characters can still be printed to the screen, the keyboard lock just prevents them from being entered at the keyboard.

THE FLASHING CURSOR

CES uses location 204 to control the cursor flash. When this location (204) contains a zero, the cursor and all inverse characters assume their normal steady state (i.e. not flashing). When this location contains a non-zero value the flashing of the cursor and inverse characters is enabled, the flash rate and the flash pattern being dependent upon the value location 204 contains. For an even flash rate with an equal mark-space ratio (on-off times), the value should be a multiple of two. 16 is the most suitable value which gives a good flash rate. Any value from 1 to 255 may be used to generate different flashing effects, it is recommended to experiment with this.

The cursor may be turned off by using POKE 752,1 in the usual way whether the cursor flash is enabled or not.

SCREEN OR TEXT ON/OFF

Turning the screen on/off and therefore the text is achieved by using location 205. When this location contains a zero, all on screen text is visible in the normal way, but when it contains a non-zero value, the text is invisible.

The actual values used for the line and character colours are unimportant since a non-zero value in location 205 forces all the characters to assume the same colour as the lines

continued on page 14

```
QB 10 REM [Q][R][R][R][R][R][R][R]
   [R][R][R][R][R][R][R][R][R][R]
   [R][R][R][R][R][R][R][R][R]
   [R][R][E]
HC 20 REM |COLOUR EXTENSION SUBROUTINE |
TL 30 REM |         CES Version III     |
JV 40 REM [A][R][R][R][R][R][R][R]
   [R][R][R][R][R][R][R][R][R][R]
   [R][R][R][R][R][R][R][R][R]
   [R][R][D]
YG 50 REM |           Written by        |
BK 60 REM |John Foskett   February 1995|
JY 70 REM [A][R][R][R][R][R][R][R]
   [R][R][R][R][R][R][R][R][R][R]
   [R][R][R][R][R][R][R][R][R]
   [R][R][D]
KQ 80 REM |      FOR NEW ATARI USER     |
QH 90 REM [Z][R][R][R][R][R][R][R]
   [R][R][R][R][R][R][R][R][R][R]
   [R][R][R][R][R][R][R][R][R]
   [R][R][C]
QQ 100 GRAPHICS 0:POKE 16,64:POKE 53774,6
   4
BG 110 DIM DL$(55),VBI$(55),DLI$(43),RESE
   T$(44),COLOUR$(30)
PV 120 DL$="p0<,>B@[ESC,DELETE LINE][,]
   <B>[,]<B>[,]<B>[,]<B>[,]<B>[,]
   <B>[,]<B>[,]<B>[,]<B>[,]<B>
   [,]<B>[,]<B>[,]<B>[,]<B>[,]<B>
   [,]<B>[,]<B>[,]<B>[,]<B>[,]
   <B>[,]<B>[,]<B>[,]<B>A":DL$(6,6
   )=CHR$(PEEK(89))
RQ 130 VBI$="H)[,]<E>H<M>[ESC,INSERT][B]
   <E>Q{P%Kp[J])[,]<M>6[B])@<M>)
[B]%Lp[Q]%P%LELp[I]P[K]<M>s[B]hL
   <J>B)[B]Pu)[,]pg"
JF 140 DLI$="H<J>H<X>H{0&Q<.>[Y]p[X]
   jj=[ESC,INSERT][E]<M>[X]P$MP[C]=[W]
   [F]<M>[W]Ph(h*h@"[,]<F>Qpb"
GS 150 RESET$="hp[ESC,RIGHT]hh<E>Nhh<E>
   0"[,]%N[ESC,INSERT LINE][,][F]<.>[W]
   p[F]h<.>0Pt[.]%0pvPt)<T><E>N)J<E>
   OP_"
NC 160 COLOUR$="h*JJhh<E>Np[D])[X]<E>
   Nhh[X]eN(hh<Y>[,][F]HJPw[.]"
ES 170 REM  Set-Up CES Registers
JV 180 POKE 54286,0:I=ADR(DL$):DLHI=INT(I
   /256):DLLO=I-DLHI*256
EY 190 POKE 560,DLLO:POKE 561,DLHI:DL$(LE
   N(DL$)+1)=CHR$(DLLO):DL$(LEN(DL$)+1)=C
   HR$(DLHI)
SJ 200 I=ADR(VBI$):HI=INT(I/256):LO=I-HI*
   256:POKE 548,LO:POKE 549,HI
CX 210 I=ADR(DLI$):HI=INT(I/256):LO=I-HI*
   256:POKE 512,LO:POKE 513,HI
ZS 220 POKE 54286,192:POKE 203,1:POKE 204
   ,16:POKE 205,0
LA 230 REM ----------------------------
QV 240 REM
QX 250 REM
QZ 260 REM
LI 270 REM ----------------------------
OE 280 REM       EXAMPLE PROGRAM
HF 290 DIM S$(37):S$=" ":S$(37)=" ":S$(2)
   =S$:POKE 752,1
OJ 300 REM  Main Screen
AC 310 POKE 205,1:I=USR(ADR(COLOUR$),0,0,
   52,52,20,180,164,180,0,138,0,36,36,36,
   36,68,68,0,0,0,0,0,228,228,228,228)
JJ 320 J=10:I=USR(ADR(COLOUR$),1,0,12,J,J
   ,J,12,J,J,0,J,J,J,J,J,J,J,J,0,J,J,J,
   J,J,J)
JQ 330 PLAIN=0:? "[ESC,CLEAR] COLOUR EXTE
   NSION SUBROUTINE or CES":? "[ESC,TAB]
   [ESC,TAB][ESC,LEFT]Version  III":? "
   [ESC,TAB]   WITH EXAMPLE PROGRAM"
TA 340 ? "[ESC,TAB][ESC,TAB]Written by":?
    "[ESC,TAB][ESC,TAB][ESC,LEFT]John Fos
   kett":? "[ESC,TAB][ESC,TAB]April 1994"
   :? "[ESC,TAB][ESC,DOWN]   FOR NEW ATA
   RI USER"
KV 350 ? "[ESC,DOWN]This is the latest ve
   rsion of CES. It supercedes the origin
   al version that"
GL 360 ? "was originally published in iss
   ue 63  of the New Atari User magazine.
   "
DE 370 ? "Version II has been issued. It
   too is superceded by this version of C
   ES.":GOSUB 860:POKE 205,0
OT 380 REM  Select from Menu
QZ 390 POKE 764,255:OPEN #1,4,0,"K:":GET
   #1,K:CLOSE #1:K=K-48
DO 400 IF K=1 THEN GOSUB 820
HT 410 IF K=2 THEN GOSUB 770
VL 420 IF K=3 THEN 310
CH 430 IF K=4 THEN GOSUB 520
IF 440 IF K=5 THEN POKE 560,32:POKE 561,1
   56:FOR I=0 TO 200:NEXT I:POKE 560,DLLO
   :POKE 561,DLHI
QN 450 IF K=6 THEN POKE 205,1:FOR I=0 TO
   200:NEXT I:POKE 205,0
MG 460 IF K=7 THEN I=INT(RND(0)*256):J=18
   6:GOSUB 500
GI 470 IF K=8 THEN I=16:J=28:GOSUB 500
QO 480 GOTO 390
IC 490 REM  Cursor Flash
MR 500 POKE 1553,J:POKE 204,I:POSITION 2,
   17:? S$:? "[ESC,UP]CURSOR FLASH: POKE
   204,";I:RETURN
GT 510 REM  Keyboard Lock
BM 520 I=USR(ADR(COLOUR$),1,20,228,228,22
   8,228)
AC 530 POSITION 2,17:? S$:FOR I=0 TO 3:PO
   SITION 2,20+I:? S$;:NEXT I
ZK 540 I=USR(ADR(COLOUR$),1,16,164,162,16
   4,164,162,164,162,160)
YO 550 I=USR(ADR(COLOUR$),0,16,164,162,16
   4,164,162,164,162,160)
OC 560 POKE 203,1:POSITION 2,16:? "THE KE
   YBOARD LOCK FEATURE: LOCK ON"
FX 570 ? "[ESC,DOWN]Try entering some low
   ercase and some  inverse characters...
   ."
ZZ 580 ? "[ESC,DOWN]>_":? "[ESC,DOWN]ESCA
   PE LOCK ON/OFF        RETURN EXIT";
ZA 590 J=10:I=USR(ADR(COLOUR$),1,16,J,J,J
   ,J,J,J,J,J)
FO 600 POKE 204,16:FOR I=1 TO 35:OPEN #1,
   4,0,"K:":GET #1,K:CLOSE #1:IF K=27 THE
   N GOSUB 730:GOTO 630
WH 610 IF K=155 THEN POP :GOTO 650
ND 620 POSITION 2+I,21:? CHR$(K);" "
GC 630 NEXT I
BA 640 REM  Exit Keyboard Lock
ZN 650 I=USR(ADR(COLOUR$),1,16,164,162,16
   4,164,162,164,162,160)
GQ 660 FOR I=0 TO 7:POSITION 2,16+I:? S$;
   :NEXT I
JD 670 I=USR(ADR(COLOUR$),0,16,0,0,0,0,22
   8,228,228,228)
BZ 680 I=USR(ADR(COLOUR$),1,20,228,228,22
   8,228)
FV 690 GOSUB 860:POKE 203,1
OK 700 J=10:I=USR(ADR(COLOUR$),1,16,J,0,J
   ,J,J,J,J,J)
ZF 710 RETURN
XQ 720 REM  Keyboard Lock On/Off
WZ 730 I=I-1:J=PEEK(203):J=1-J:POKE 203,J
   :POKE 694,128:POKE 702,0:POSITION 35,1
   6:IF J=0 THEN ? "FF"
LO 740 IF J=1 THEN ? "N "
ZN 750 RETURN
BL 760 REM  Set Plain Screen Colours
SU 770 PLAIN=1-PLAIN:POSITION 6,21:IF PLA
   IN=0 THEN I=USR(ADR(RESET$)):? "PLAIN"
   :RETURN
CE 780 A=INT(RND(0)*256):C=A-INT(A/16)*16
DM 790 B=INT(RND(0)*256):IF ABS(C-(B-INT(
   B/16)*16))<4 THEN 790
YF 800 I=USR(ADR(RESET$),A,B):? "RESET":R
   ETURN
DJ 810 REM  Partial Screen Colour
AB 820 A=INT(RND(0)*256):B=INT(RND(0)*256
```

Underline = INVERSE CHARACTERS · [ ] = CONTROL + CHARACTER · < > = INVERSE CONTROL + CHARACTER

Underline = INVERSE CHARACTERS · [ ] = CONTROL + CHARACTER · < > = INVERSE CONTROL + CHARACTER

upon which they are printed. The actual character colour values in page 6 are not changed by the value that location 205 contains, they are merely bypassed. The original character colours may be restored at any time by loading location 205 with a zero.

A SECOND CLOCK

Although location 208 is used by CES itself to regulate the cursor flash rate, it may be used as a second clock in the same way as location 20, since it is incremented at each VBI. If the cursor is being used, then location 208 may be PEEKed but should not be POKEd as poking it would cause a disruption in the cursor flash rate. If the cursor is turned off then this location may be POKEd at will.

```
   ):C=INT(RND(0)*16):D=INT(RND(0)*16)
GY 830 I=USR(ADR(COLOUR$),0,9,A,A,A,A):I=
   USR(ADR(COLOUR$),0,13,B,B)
JE 840 I=USR(ADR(COLOUR$),1,9,C,C,C,C):I=
   USR(ADR(COLOUR$),1,13,D,D):RETURN
EP 850 REM  Menu
PD 860 POSITION 2,20:? " 1  PARTIAL SCREE
   N  5  NORMAL SCREEN":? " 2  ";:IF PLAI
   N=0 THEN ? "PLAIN";
BE 870 IF PLAIN=1 THEN ? "RESET";
EO 880 ? " COLOUR    6  TEXT ON/OFF"
TH 890 ? " 3  RESTORE SCREEN  7  RATE OF
   FLASH":? " 4  KEYBOARD LOCK   8  RESTO
   RE FLASH";:RETURN
```

Underline = INVERSE CHARACTERS · [ ] = CONTROL + CHARACTER · < > = INVERSE CONTROL + CHARACTER

LOCATION 209

This location is used by CES itself as a counter to synchronise the colours to the correct screen lines. This location is incremented each time the DLI is called by the display list, which is 24 times. Thus location 209 increments to 24 before it is reset to zero by the VBI. This register tells the DLI where to read the data from in page 6 to load into the appropriate two hardware colour registers. This register should never be POKEd since this would cause a nasty flicker on screen as the colours suddenly become "out of sync".

This location could be used as a random number generator, generating numbers in the range of 0 to 24 which is achieved by simply PEEKing location 209 from Basic.

CES TECHNICAL DETAILS

WHY NOT "WSYNC"

The usual way of synchronising the loading of the hardware registers is to use the "WSYNC" register at location 54282. When used, the colours of the lines were found to be rock steady, but they appeared to wobble when text was printed to the screen creating a nasty amateurish appearance. This results from the WSYNC register synchronising to the next scan line down the screen due to the timing requirements for screen printing and then returning to the previous line. To overcome this problem, two "NOP" instructions (see the source code listing) are used instead of the WSYNC register to sufficiently delay the loading of the hardware registers to ensure that it is done off screen which provides colours that are rock steady at all times.

Machine Code Routines for CES III

```
;VBI Routine
 PHA
 LDA #0
 STA 77
 STA 767
 STA 209
 INC 208
 LDA 203
 BEQ CHARAC
 LDA #0
 STA 694
 LDA #64
 STA 702
CHARAC
 LDA 204
 BEQ ON
 LDA 208
 AND 204
 CMP 204
 BEQ ON
 BNE OFF
CURSOR
 STA 755
 PLA
 JMP 49802
;------------
ON
 LDA #2
 BNE CURSOR
OFF
 LDA #0
 BEQ CURSOR
```

```
;DLI Routine
 PHA
 TXA
 PHA
 TYA
 PHA
 INC 209
 LDX 209
 CPX #25
 BEQ RESET
RETURN
 NOP
 NOP
 LDA 1535,X
 STA 53272
 LDY 205
 BNE BYPASS
 LDA 1559,X
BYPASS
 STA 53271
 PLA
 TAY
 PLA
 TAX
 PLA
 RTI
;------------
RESET
 LDX #0
 STX 209
 BEQ RETURN
```

```
;Colour Loading
Routine
 PLA
 TAX
 DEX
 DEX
 PLA
 PLA
 STA 206
 BEQ LINECOL
 LDA #24
 STA 206
LINECOL
 PLA
 PLA
 CLC
 ADC 206
 TAY
LOOP
 PLA
 PLA
 STA 1536,Y
 INY
 DEX
 BNE LOOP
 RTS
```

```
;Colour Reset
Routine
 PLA
 BEQ DEFAULT
 PLA
 PLA
 STA 206
 PLA
 PLA
 STA 207
DEFLTRET
 LDX #0
 LDA 206
LOOP
 STA 1536,X
 CPX #23
 BEQ CHANGE
RETURN
 INX
 CPX #48
 BNE LOOP
 RTS
 ------------
CHANGE
 LDA 207
 BEQ RETURN
 BNE RETURN
;------------
DEFAULT
 LDA #148
 STA 206
 LDA #202
 STA 207
 BNE DEFLTRET
```

THE DISPLAY LIST

The display list is stored in the form of a relocatable string (DL$) and is a normal mode zero display list modified to call up a DLI interrupt 24 times. Zeros (the heart characters) have been included in the display list to produce the lined screen. A partially lined screen may be created by simply removing the

appropriate few heart characters from the display list string. Thicker lines are obtained by replacing the appropriate heart characters with characters having ASCII codes of a multiple of 16. If the display list is altered in any way, then the first two characters of the display list string may need to be changed to re-centralise the display in the normal way.

The disadvantage of storing a display list as a relocatable string is that it must not cross a page boundary. If it does, the screen display is effected in the same way as POKEing odd values into location 560 and 561. The cure is simply a matter of preventing this, which can be achieved by placing a REM statement containing about 30 to 50 characters at the beginning of a Basic program to push the whole program along a bit in RAM. The REM may be removed after further development of the Basic program.

USE WITH TURBO BASIC

CES may be used with either Turbo Basic or standard Atari Basic since it PEEKs location 89 and loads the sixth display list character according to the value found. This is necessary because of the different screen RAM addresses used in the two languages.

The sixth character of the display list string may be changed permanently by hand to suit a particular program which will avoid having to PEEK location 89. For standard Atari Basic, the inverse "up arrow" character, ASCII code 156 is used and for Turbo Basic inverse "<" character, ASCII code 188 is used.

LOADING THE COLOURS

CES contains two relocatable machine code string routines for loading the colour data to provide virtually instant screen colouring. The routines are described separately as follows.

MULTICOLOURED SCREEN DATA LOADING

This is achieved by using "COLOUR$" via the USR command as follows ....

X=USR(ADR(COLOUR$),A,B,C0,C1,C2,C3....)

where ....

A selects line or character colouring (zero for line and non-zero for characters)
B is the first line to be coloured (0 to 23 where 0 is the top line)
Cx is the actual colour data (0 to 255)

This routine may be used with a minimum of three parameters (A,B and C0) up to a maximum of 26 parameters (A,B,C0-C23). The routine is flexible and will only load as many colour values as there are parameters in the command and therefore it is insensitive to the actual number of parameters used. The computer will therefore not crash if the wrong number of parameters are used.

SOME EXAMPLES

X=USR(ADR(COLOUR$), 0, 0, C1, C2, C3, C4 .... C23)

Will colour all 24 lines of the screen (not the characters).

X=USR(ADR(COLOUR$),0,6,C1,C2,C3,C4)

Will colour four lines beginning with line 6.

X=USR(ADR(COLOUR$),1,5,0,0,0,0,0,0,0,0)

Will set the brilliance of eight lines of characters to black starting on line 5.

X=USR(ADR(COLOUR$),1,10,0,0)

Will set the characters on line 10 and 11 to black.

POSSIBLE ERRORS

Because up to 26 parameters may be used in the routine, errors may result due to stack overflow (error 10) or line too long (error 14). If such errors are encountered, then a Basic FOR-NEXT loop can always be used instead.

RESET AND PLAIN SCREEN COLOURS

This is achieved using 'RESET$' via the USR command and is used to colour the whole screen with a single colour and to set all lines of characters to a single brilliance. The routine can be used with either two parameters or with no parameters at all. When no parameters are used, the routine defaults to the standard colour values for a mode zero screen which is 148 and 202. The routine is used in the following two ways ....

X=USR(ADR(RESET$),A,B)

where ....

A is the screen colour and
B is the character brilliance

To reset the entire screen to the usual mode zero colouring of blue with white characters use ....

X=USR(ADR(RESET$))

Of course, the first method using two parameters could always be used instead thus ....

X=USR(ADR(RESET$),A,B)

where A=148 and B=202

THE BASIC LISTING

The CES program itself is the top part of the listing with the example program following. The example program shows some of the potential of CES Version III.

USING CES IN YOUR OWN PROGRAMS

It is a simple matter to delete the example program from the listing (after saving it of course) and begin writing your own program in its place. When using CES in your own programs, it should be remembered that the 48 colour registers in page 6 initially contain a zero which results in a black screen with no visible text. This can easily be overcome by initialising, at least temporarily, with X=USR(ADR(RESET$)).

As previously stated, CES Version III contains two additional machine code routines to load colour data at machine code speed. Although written for CES, they are complimentary routines and do not form an integral part of CES itself and if either of them is not being used within a specific Basic program, then they can simply be left out.

A SMALL DISADVANTAGE

Due to the use of machine code strings, CES has virtually no initialising time since there is no time consuming data to load. One possible disadvantage of this is that if a command is entered in direct mode, then a crash could result. This is because machine code strings float around in Basic and the respective vector addresses for both the VBI and the DLI would not necessarily contain the correct values and hence might cause a crash. A small price to pay for the advantages of CES Version III.

I hope you enjoy using the routine in your own programs. ●

BEHIND THE SCENES

It's showtime again! But have you ever wondered how all those exhibitors get there? AMS stalwart Dean Garraghty explains all

Over the years, I have written many AMS show reviews for the News/ Disk - Paper (my own magazine). These reviews give a good idea of what actually happened on the day itself, usually picking up the story at 5a.m. on the morning in question. But for us it doesn't start there at all! This article will hopefully give you more of an insight into what actually gets done before the day itself.

We have to start thinking about the show some four months in advance. This is when we get the information and booking forms from Sharward Promotions, the show organizer. The show is now so popular that you have to book and pay for the stand virtually as soon as the forms arrive in order to be sure of getting a stand. Once this has been sorted out we can usually forget about the show for some time yet.

The most difficult of shows to organise was the November 1993 show because we had Harald coming over from Germany for the day. Getting this sorted out alone was enough of a problem without thinking about everything else! As this show took so long to organise, I will use it as an example of the work (hassle?) involved in getting a show together.

INTERNATIONAL TRANSPORT!

I had asked Harald earlier that year if he would be able to come over. It took some working out, but Harald decided that he could make it. It was then that I had to "put my money where my mouth is" and actually turn that idea into a reality. Luckily Harald made some of the arrangements and I organised the rest.

The first problem was actually getting a plane from somewhere near Harald to somewhere near me. We needed to get Harald as close to Doncaster as possible, but Harald needed to get a plane from as close to him as possible. Several possibilities came to light, but some wouldn't really work. The plan we decided on involved Harald taking a 3 hour train Journey in Germany to get to a major airport to arrive at Heathrow in the UK. He would then have to take a 1 hour tube journey to Kings Cross to then take another 1hr 30mins train journey to Doncaster. The plane journey itself took only an hour!

I took care of the UK train tickets and sent them over to Harald. He would, however, have to sort out the tube journey himself. There was, unfortunately, a slight problem. It was impossible to work out which particular train Harald would catch at Kings Cross. The plane could be late, the tube may take longer - I had to know in order to be at Doncaster station in time to pick Harald up. The obvious solution was for Harald to phone from Kings Cross. Sounds easy? Unfortunately not! We hit two small snags. Firstly, Harald would have no UK coins for the phone. I solved that by sending him some coins in advance. Next problem: Harald had never used a UK payphone! I had to send him details of how to use one! This is a good example of just how much we have to think about while organising shows!

UK TRANSPORT

In addition to International worries, I had the rest of the show to think about! Our main problem has always been transport. Getting ourselves there has in the past almost caused us to miss the show. Luckily, Richard Gore was able to loan us his van and drive down for us. John Boyle also offered to drive down as well in order to take Harald and Mike.

The action starts to heat up about a month before the show when I have to decide what exactly we will be taking in terms of equipment, and also stock. Having worked this out, I have to set about and copy lots of disks and organise lots of photocopying. This can take a while!

Next I have to sort out the posters for the wall behind us. Yes, I'm the one who has to dream up what to write and then write it. It's not too easy on such bright paper. My eyes go all funny after a while!

Next I do a layout plan for the stand. It may look like we just turn up and dump all the stuff on two tables, but we do actually work this out in advance! We need to ensure that people can see stuff, and that people can see us! We usually have more stuff happening behind the stand, and again we have to make sure we know what we've put where, although this doesn't stop us losing things! Advance planning means we don't waste too much time on the day. Everything is packed into boxes and labelled. We also have various lists of what we have taken down, and these are checked when we pack and unpack things. This not only covers stock, but also everything down to pens and blu-tak!

CALLING HELPERS

In addition to Harald, lots of other people were coming along to help, all from different parts of the country. All had to be contacted and confirmed. The day before a show is always chaotic. Have we done everything?, does everyone know what they're doing? I usually do all the packing the day before along with packing all the machines. It's then time to phone people to make sure there are no last minute problems. With Harald coming over on the Friday, the day before in November 1993 was more chaotic than usual! I had to go and collect Harald and bring him back to my house. He was bringing over the labels for Bombi which we were to release at the show.

We quickly put all the labels on the ready duplicated disks and got back to more pressing matters - our tea!

The fun and games was to go on quite late on that particular Friday. Richard had to bring some copies of Alien Blast (or at least I think it was this!) which he had literally just finished! Also, Richard had just transferred Fampy over from Germany, but it needed sorting out because it was on a PC disk. We fiddled for ages to get it to work, but I couldn't seem to be able to get the Atari side of things working. Richard went away with some bits and pieces and tried himself to get it working. Luckily it worked but I didn't actually get to see it working myself until the morning of the show!

I sometimes continue organising well into the night, perhaps until 2a.m. I get about 2 hours sleep, and then have to get up! This is a killer!

WE'VE ARRIVED!

We often say in reviews that "after setting up..." we do this that and the other. However, the setting up part is also hard work. There's lots to be done before you lot come in at 10a.m. We race against the clock, often still setting up minutes before the doors open. We usually get to the stand itself about 7.30a.m. We then unload the van and go about unpacking all the boxes. At this point it is just chaos and we spend about half an hour just moving things around in circles! Eventually it starts to take shape. Getting the machines set up and tested is usually job one. Somebody then puts up the posters (usually me!). We usually take two tables of our own down which we use for a machine at the back of the stand, and one for other bits and pieces. We usually spend ages finding something to prop these tables up with, because they always collapse! We then unpack the stock for the day, some of which goes on what space is left on the stand and some of which is left behind the stand (copies of all our commercial stuff and such like). Getting all our used hardware and software to fit is often difficult, which is why it is usually just in a pile!

After all this is sorted out we have to spend six hours actually doing the show. Once the show is over, we then have to re-pack everything. If this takes as long or longer than it did to unpack everything, then we know we haven't sold much!

BACK TO GERMANY

For most shows it would now all be over, but in November 1993 we had Harald over and we had to get him back down to London on the Monday. We had all this planned, but thanks to British Rail (who, as some people will probably know, I don't have a lot of time for!), all the trains that morning down to London were running late. Twenty minutes of chaos followed on Doncaster station. Nobody knew what was happening. The train finally arrived, but they knew that it would be further delayed down the line. I wasn't too happy about all this and made it clear to BR that if Harald missed his plane I would hold them totally responsible. As it happened, Harald got on the plane with ONE minute to spare, but he had to run everywhere. He very nearly did miss his plane back. Conclusion: don't rely on BR!

I hope all this has given you all some idea of the amount of effort we put in to shows, and how much has to be done to make it all happen. It is made easier with the help of the many people who we always thank at the end of the reviews.

See you all at the next show! It won't be long, we've already started work! ●

SEEING THE LIGHT

Micro Discount have discovered some ROMs that Atari never released. Paul Rixon checks them out for value

Remember those heady 'golden' years of Atari computing when software companies were still producing new games for XL/XE machines? The magazines were never short of product announcements and hopeful rumours. Sometimes the software made it into the shops and mail order catalogues, but other times the reality was - nothing. Why did organisations such as Ocean place full-page adverts in magazines but never release the featured software? Did these games ever exist, or were companies just testing the water?

Following the recent discovery of Tube Baddies (see issue 72) we know that Atari Corporation, for one, commissioned games which were duly completed but never sold. Several excellent programs have remained unknown to all but the authors and, presumably, a small number of Atari employees. No doubt there are valid reasons why Atari put these games on hold, but it does seem a shame that programmers' hard work may never be enjoyed.

OLD SECRETS DISCOVERED

Now for some good news ... Micro Discount have stumbled upon a small supply of 'unknown' games on ROM cartridge - Berzerc, Tower Toppler and Deflektor - inside a consignment of goods from Atari's Stateside warehouse. It appears that Atari's development section used ROMs to distribute programs to their beta-testers, who were responsible for checking them prior to final release. For these three games, the release never came. But now you can buy them!

BERZERC

Berzerc is the oldest game (it was completed in 1983) and, not surprisingly, the most graphically primitive. I've a feeling it may have surfaced before somewhere but it hasn't been widely distributed. Berzerc is a simple shoot-em up similar to the equally basic Robotron 2048. A joystick-controlled 'humanoid' is pursued by a screen-full of Robot aggressors. Your task is to shoot the baddies before they do the same to you, avoid a maze of walls and head for the nearest exit. If you take too long a bouncy 'thing' comes to get you.

Berzerc would be a poor show if it wasn't for the inclusion of innovative software speech. 'Intruder alert' says your Atari. 'The humanoid must not escape' ... 'Chicken, fight like a robot!' ... 'Got the humanoid, got the intruder'. Anything else? Well, you just have to play and see. Could be addictive, this!

TOWER TOPPLER

Tower Toppler dates from 1987 and was developed by Hewson. Page 6 reported in issue 29 (my first!) that Hewson, who had previously published hits including Uridium and Firelord for other machines, were turning their attention to Atari. How many Hewson/Atari games can you think of? Well, Tower Toppler made it on the ST but the 8-bit version, which was evidently sold to Atari, stayed out of circulation.

If you're keen on platform games, Tower Toppler is a real treat. On the distant planet Nebulas there are eight mysterious towers. Your job is to knock them down. To do this, you have to climb each tower using the perimeter platforms whilst avoiding traps and obstacles designed to hinder your progress. The towers are protected by indestructible molecules, flying 'eyes', vicious robots and huge rolling cannonballs. You're equipped with a snowball gun, but it's only effective on a few of the nasties. Some ledges crumble beneath you and others make you slip - if you don't take the correct route, you'll end up drowning in a poison sea. After each tower there's a mindless bonus round where you can shoot 'fish' in a mini-sub. Then it's onto the next one.

The graphics are based on the Atari's highest-resolution mode so there isn't much colour variety but the detail is very fine indeed. A clever technique is used to give the impression you're walking around a circular tower. The features of the tower 'swivel' into view from the edge, as you walk to the left or right. There's a certain amount of flicker in the screen borders (maybe this explains why Atari wouldn't sanction a release?) but this doesn't detract from the game itself. There's nice music at the start and suitable sonics throughout. Overall, Tower Toppler is a genuine quality product.

DEFLEKTOR

Deflektor is a US Gold development by Vortex Software for Atari Corp. It's dated 1989, which suggests that Atari may have had it lined up for their farcical 'Games Centre' promotion. Around this time, Atari did produce several new releases.

It's a puzzle game similar in style to the high-quality imports from Germany and Eastern-European countries. The ROM boots up with the digitised sound of 'Deflektor', followed by an original tune and colourful introduction screen. Press the trigger and the game starts. The aim is to destroy boulders on each screen, using a laser beam. The beam is fixed in position at source but, using a variety of swivelling deflector 'gadgets', you can change the direction and find a way to reach different parts of the screen. Some objects are destructible whilst others cause an overload on the laser. Some have special functions that help you to wipe out otherwise inaccessible boulders. When all the required items have been zapped, you can move onto the next level.

Like most puzzle games, Deflektor doesn't sound overly exciting on paper but addiction soon sets in when you start to play. The graphics are competent and the playability rating is high. Deflektor is as good as - if not better than - other puzzle games that have made it into the market. It's well worth investigation.

There we have it - three great games that Atari didn't release. How many more have yet to be discovered? And how many authors were paid to write super games that were not subsequently published? Did Postman Pat ever exist? Will we ever know? ...

Deflektor, Berzerc and Tower Toppler can be purchased from Micro Discount (0121 353 5730) while stocks last. Each cartridge costs £13.50 inclusive.

An introduction to ...

INPUT/OUTPUT CONTROL BLOCKS

Ann O'Driscoll continues her series of articles explaining some of the basic operations of your Atari

The Atari has 8 channels (numbered 0 to 7) which are used to communicate with (i.e. get information from or put information to) all the input/output devices such as the keyboard, the disk drive, the printer, and so on. These lines of communication are the Input Output Control Blocks. If you want to use an IOCB in a BASIC program, the general procedure is that you open the channel up, tell the computer to transfer the data and then close the channel down again when you are finished.

OPENING A CHANNEL

While some operations (like LPRINT) have automatic OPEN/CLOSE channel functions built in to them, for other operations you must tell the computer what to do. The BASIC command **OPEN** links a channel to a device and takes the form

OPEN #A,B,C,D

where

A = the channel (IOCB) number
B = a number specifying the kind of action allowed
C = an auxiliary code, and
D = the device to be used

The channel, is normally a number between 1 and 5, as the other three channels (0, 6 and 7) are not always freely available to the user. Channel 0 is used for the screen editor (E:), channel 6 is used for the screen display (S:) in the graphics modes and channel 7 is used by LPRINT, LOAD, RUN, LIST and SAVE routines.

The action number, is generally set at either 4 or 8. For input/output operations the data will either be transferred from (read) or sent to (written) the device. Input, or reading, is specified by a 4; output, or writing, by an 8. Other actions include reading the disk directory (specified by a 6) and write and append (specified by a 9).

```
TO 1 REM ##############################
IE 2 REM #    IOCB'S - LISTING 1      #
AQ 3 REM #          by                #
CX 4 REM #     Ann O'Driscoll         #
KA 5 REM # -------------------------- #
ZT 6 REM # NEW ATARI USER - SEP 95 #
TU 7 REM ##############################
NN 8 REM
VW 34 REM  READING DISK DIRECTORY
BM 36 REM
EL 39 REM -- DIMension a string to read f
   ilenames as they appear on the disk
ST 40 DIM A$(17)
JV 48 REM -- Close channel 1 then open it
    to read the disk directory. The files
   pec "D:*.*" reads everything..
AE 49 REM ..You can change this too: E.g.
   "D:*.BAS" will just read files with a
   .BAS extender.
BU 50 CLOSE #1:OPEN #1,6,0,"D:*.*"
WU 59 REM -- Close channel 2 then open it
    for keyboard input
PL 60 CLOSE #2:OPEN #2,4,0,"K:"
FT 69 REM -- Clear the screen, turn off c
   ursor, give instructions
YA 70 GRAPHICS 0:POKE 752,1:POSITION 2,3:
   ? "READING DISK DIRECTORY.."
WD 80 POSITION 2,6:? "[.] PRESS  SPACE  T
   O SEE NEXT FILE"
IU 89 REM -- Read filename from disk
MM 90 INPUT #1,A$
FI 99 REM -- No more files
YB 100 IF LEN(A$)<17 THEN 140
LW 108 REM -- Display filename. A$(3,10)
   just gives the name without the extend
   er. You can print the whole..
LJ 109 REM ..17 characters if you want -
   just change the A$ specification in LI
   NE 110
HS 110 POSITION 2,10:? " FILENAME:   ";A$
   (3,10)
UG 119 REM -- Get input from keyboard
GV 120 GET #2,K
NH 129 REM -- SPACE=32, so go for more in
   put. Otherwise go to line 110 and try
   again
QU 130 ON K=32 GOTO 90:GOTO 110
AZ 140 POKE 752,0:END
```

Underline = INVERSE CHARACTERS · [ ] = CONTROL + CHARACTER · < > = INVERSE CONTROL + CHARACTER

Listing 1

The auxiliary code, is usually set at 0. Sometimes you might see a value of 128 here when the OPEN command is being used to transfer data to or from the cassette recorder, because this speeds up the process.

The device, can be any of the Atari's input output devices, such as the keyboard (K:), the printer (P:), the disk drive (D:) or the cassette recorder (C:). If you're using the disk drive you must also specify the filename or range of filenames: For instance,

OPEN #1, 4,0,"D:TEST.BAS"

opens channel 1 to read the disk file called "TEST.BAS", while

OPEN #3,6,0,"D:*.FNT"

opens channel 3 to read the disk directory for all files with a .FNT extender. The screen editor (E:), the screen display (S:) and the serial port (R:) are also considered to be devices.

TRANSFERRING DATA

Once you have opened a channel, linked it to a device and specified whether you are reading, writing, etc., you must get the computer

to actually transfer the data. The BASIC commands to do this are PUT and GET (for single bytes) and INPUT and PRINT for strings. The details are shown in Table 1 overleaf.

The channel number is also specified in the command. For example,

OPEN #1, 4, 0, "K:"

which opens channel 1 for input from the keyboard, would usually be followed by something like

GET #1,n

which gets one byte from channel 1.

Similarly,

OPEN #2, 6, 0, "D:*.*"

which opens the disk directory for reading on channel 2, would be followed by a command like

INPUT #2,A$

which reads a string (in this case, a filename) from channel 2. One thing to note here is that BASIC can only transfer strings of up to 119 bytes at a time, so you have to put in a for-next loop if your string is longer than this. There is no such limitation with single byte transfer.

CLOSING A CHANNEL

When you are finished transferring the data you should close the IOCB channel by using the BASIC command **CLOSE #A** where "A" is the channel number. It's important to do this because you will get an error message if you accidentally try to open a channel which is open already - this applies even if the second operation is exactly the same as the first. Incidentally, closing a channel which is already closed does not cause an error - this makes it possible to precede the open statements with close statements in a program - often a useful way to avoid the "already open" error.

TABLE 1
DATA TRANSFER COMMANDS

TYPE OF ACTION	BASIC COMMAND
INPUT (READ)	GET (bytes) INPUT (strings)
OUTPUT (WRITE)	PUT (bytes) PRINT (strings)

PRACTICAL EXAMPLES

Some simple examples of IOCB operations, using the BASIC commands discussed here, are given in LISTINGS 1 and 2. The first program opens channel #1 to read the disk directory (LINE 50) and prints the results on the screen one file at a time. LINE 60 opens channel #2 for keyboard input and the next file is displayed each time the spacebar is pressed. In both cases, the channels are closed before the OPEN statement, as mentioned above.

The second program uses channel #1 to save a Graphics 7 screen to disk and then reload it back again. This should work with the cassette recorder if you change "D:IOCBTEST.PIC" to "C:" in LINE 90 (saving) and LINE 280 (loading). (You must also remember to rewind the tape before loading.) The program uses single byte (PUT and GET) transfer.

The REMs should give a good idea of what Listing 2 does. A Graphics 7 screen is drawn at the start of the program. LINES 110 and 120 save the graphics mode (memory location 87) and colour registers (locations 708 to 712) to a disk file called IOCBTEST.PIC which was opened for writing in LINE 90. LINE 130 works out the number of bytes to be saved. The pointers for the start of screen RAM (defined as SC in the program) are at memory locations 88 (low byte) and 89 (high byte). The pointers for text window RAM (defined here as


```
TO 1 REM ##############################
JH 2 REM #    IOCB'S - LISTING 2      #
AQ 3 REM #           by               #
CX 4 REM #     Ann O'Driscoll         #
KA 5 REM # -------------------------- #
ZT 6 REM # NEW ATARI USER - SEP 95 #
TU 7 REM ##############################
NN 8 REM
YU 34 REM  SAVING AND LOADING DATA
TM 39 REM  - DRAW SCREEN IN GRAPHICS 7
EZ 40 GRAPHICS 7:POKE 752,1
AG 50 FOR R=0 TO 79:COLOR R:PLOT 0,R:DRAW
   TO 159,R:NEXT R
SP 59 REM  - WAIT FOR KEYPRESS
GS 60 POKE 764,255:? "[ESC,TAB]  Press a
   key to save":? "[ESC,TAB]  this screen
    to disk"
TT 70 IF PEEK(764)=255 THEN 70
NC 79 REM  - OPEN CHANNEL 1 FOR OUTPUT
LO 80 CLOSE #1
BE 90 OPEN #1,8,0,"D:IOCBTEST.PIC"
EW 109 REM  - SAVE GRAPHICS MODE
YH 110 PUT #1,PEEK(87)
ZM 119 REM  - SAVE COLOURS
FV 120 FOR N=708 TO 712:PUT #1,PEEK(N):NE
   XT N
RI 129 REM  - WORK OUT NUMBER OF BYTES  b
   etween the start of screen ram (SC) an
   d text window ram (TW)
XZ 130 SC=PEEK(88)+256*PEEK(89):TW=PEEK(6
   60)+256*PEEK(661):B=TW-SC
PW 149 REM  - SAVE BYTES
XY 150 FOR N=0 TO B:PUT #1,PEEK(SC+N):NEX
   T N
LJ 160 CLOSE #1
ZF 199 REM  BACK TO GRAPHICS 0 ..
PX 200 GRAPHICS 0:POKE 752,1:POSITION 2,6
FI 210 ? "[ESC,TAB][Q][R][R][R][R][R]
   [R][R][R][R][R][R][R][R][R]
   [R][R][R][R][R][R][R][R][R][R]
   [E]"
ZU 215 ? "[ESC,TAB]| The Graphics 7 scree
   n |"
UL 220 ? "[ESC,TAB]| has been saved. Now
   we |"
DA 225 ? "[ESC,TAB]| will reload it again
    |"
TY 230 ? "[ESC,TAB][Z][R][R][R][R][R]
   [R][R][R][R][R][R][R][R][R]
   [R][R][R][R][R][R][R][R][R][R]
   [C]":?
GB 235 ? "[ESC,TAB][Q][R][R][R][R][R]
   [R][R][R][R][R][R][R][R][R]
   [R][R][R][R][R][R][R][R][R][R]
   [E]"
OY 240 ? "[ESC,TAB]| PRESS A KEY TO RELOA
   D |"
GQ 245 ? "[ESC,TAB][Z][R][R][R][R][R]
   [R][R][R][R][R][R][R][R][R]
   [R][R][R][R][R][R][R][R][R][R]
   [C]"
NU 259 REM  - WAIT FOR KEYPRESS
WU 260 POKE 764,255
GM 270 IF PEEK(764)=255 THEN 270
BC 279 REM  - OPEN CHANNEL 1 FOR INPUT
UO 280 OPEN #1,4,0,"D:IOCBTEST.PIC"
XK 309 REM  - LOAD GRAPHICS MODE  ..and g
   o into that mode
DC 310 GET #1,G:GRAPHICS G
SB 315 POKE 752,1:REM Turn off cursor
PZ 319 REM  - LOAD COLOURS  .. and put th
   e values in the colour registers
IG 320 FOR N=708 TO 712:GET #1,C:POKE N,C
   :NEXT N
DW 329 REM  - WORK OUT NUMBER OF BYTES  .
   . between the start of screen ram and
   text window ram:i.e. screen size
YB 330 SC=PEEK(88)+256*PEEK(89):TW=PEEK(6
   60)+256*PEEK(661):B=TW-SC
WQ 349 REM  - LOAD BYTES  and poke them
   into screen ram
IU 350 FOR N=0 TO B:GET #1,BB:POKE (SC+N)
   ,BB:NEXT N
LY 355 CLOSE #1
HW 360 POKE 764,255:POKE 752,0
HS 370 ? "All done:";
OI 380 END
```

TW) are at locations 660 (low byte) and 661 (high byte). It follows that TW minus SC gives us the number of bytes between the start of screen RAM and the text window and this is the amount that the program saves. LINE 150 saves the bytes one at a time using the PUT command. The screen goes back to Graphics 0 when the operation is completed. The loading routine simply reverses the process: LINE 280 opens the disk file for reading. The 3 blocks of information - graphics mode, colours and screen bytes - which were saved earlier are now read from the disk file and put in their correct place. On running the "reload" part of the program, you may notice that the disk drive continues to transfer data to the computer after the screen has been redrawn - this is because there are a number of spare bytes between the end of our screen and the start of text window ram. A more exact definition of bytes to be transferred in LINES 130 (saving) and 330 (loading) would be used to stop this happening in a "real" program, but it didn't really matter in the demo here.

A MACHINE CODE ROUTINE

While Program 2 adequately shows how an IOCB can be used to move large amounts of data to and from a device, if you try it out you will find that it is quite slow. This is even more of a problem with a higher resolution screen such as Graphics 8. The last program, Listing 3, modifies program 2 to incorporate a short machine code routine to speed up the data transfer. In order to understand how this works, we need to know a little bit about how IOCBs are organised in memory, because part of the process involves storing certain values in the chosen channel's memory locations in RAM.

To use the machine code routine we OPEN the channel as before, POKE certain values into the channel's RAM locations and have a MC routine to call up the Atari's Central Input Output (CIO) facility, which looks after the transferring. We enable the routine with a USR call.

RAM memory locations 832 to 959 are reserved for the 8 IOCBs. Each channel is allocated 16 bytes: Channel 0 has locations 832 to 847, Channel 1 uses 848-863, and so on.

```
TO 1 REM ################################
KK 2 REM #    IOCB'S - LISTING 3    #
AQ 3 REM #           by             #
CX 4 REM #     Ann O'Driscoll       #
KA 5 REM # ------------------------ #
ZT 6 REM # NEW ATARI USER - SEP 95 #
TU 7 REM ################################
NN 8 REM
JC 34 REM  - M/C CODE
FX 36 DIM MC$(6):FOR N=1 TO 6:READ B:MC$(
   N,N)=CHR$(B):NEXT N
PO 38 DATA 104,162,16,76,86,228
TM 39 REM  - DRAW SCREEN IN GRAPHICS 7
EZ 40 GRAPHICS 7:POKE 752,1
AG 50 FOR R=0 TO 79:COLOR R:PLOT 0,R:DRAW
   TO 159,R:NEXT R
SP 59 REM  - WAIT FOR KEYPRESS
GS 60 POKE 764,255:? "[ESC,TAB]  Press a
   key to save":? "[ESC,TAB]  this screen
    to disk"
TT 70 IF PEEK(764)=255 THEN 70
NC 79 REM  - OPEN CHANNEL 1 FOR OUTPUT
LO 80 CLOSE #1
BE 90 OPEN #1,8,0,"D:IOCBTEST.PIC"
EW 109 REM  - SAVE GRAPHICS MODE
YH 110 PUT #1,PEEK(87)
ZM 119 REM  - SAVE COLOURS
FV 120 FOR N=708 TO 712:PUT #1,PEEK(N):NE
   XT N
RI 129 REM  - WORK OUT NUMBER OF BYTES  b
   etween the start of screen ram (SC) an
   d text window ram (TW)
XZ 130 SC=PEEK(88)+256*PEEK(89):TW=PEEK(6
   60)+256*PEEK(661):B=TW-SC
WF 149 REM  - SAVE BYTES USING MC ROUTINE
TZ 150 F=11:REM number for IOCB routine w
   hen data is being SAVEd.
UI 160 GOSUB 900
ZF 199 REM  BACK TO GRAPHICS 0 ..
PX 200 GRAPHICS 0:POKE 752,1:POSITION 2,6
FI 210 ? "[ESC,TAB][Q][R][R][R][R][R]
   [R][R][R][R][R][R][R][R][R]
   [R][R][R][R][R][R][R][R][R][R]
   [E]"
ZU 215 ? "[ESC,TAB]|  The Graphics 7 scree
   n  |"
UL 220 ? "[ESC,TAB]|  has been saved. Now
   we |"
DA 225 ? "[ESC,TAB]|  will reload it again
    |"
TY 230 ? "[ESC,TAB][Z][R][R][R][R][R]
   [R][R][R][R][R][R][R][R][R]
   [R][R][R][R][R][R][R][R][R][R]
   [C]":?
GB 235 ? "[ESC,TAB][Q][R][R][R][R][R]
   [R][R][R][R][R][R][R][R][R]
   [R][R][R][R][R][R][R][R][R][R]
   [E]"
OY 240 ? "[ESC,TAB]|  PRESS A KEY TO RELOA
   D  |"
GQ 245 ? "[ESC,TAB][Z][R][R][R][R][R]
   [R][R][R][R][R][R][R][R][R]
   [R][R][R][R][R][R][R][R][R][R]
   [C]"
NU 259 REM  - WAIT FOR KEYPRESS
WU 260 POKE 764,255
GM 270 IF PEEK(764)=255 THEN 270
BC 279 REM  - OPEN CHANNEL 1 FOR INPUT
UO 280 OPEN #1,4,0,"D:IOCBTEST.PIC"
XK 309 REM  - LOAD GRAPHICS MODE  ..and g
   o into that mode
DC 310 GET #1,G:GRAPHICS G
SB 315 POKE 752,1:REM Turn off cursor
PZ 319 REM  - LOAD COLOURS  .. and put th
   e values in the colour registers
IG 320 FOR N=708 TO 712:GET #1,C:POKE N,C
   :NEXT N
DW 329 REM  - WORK OUT NUMBER OF BYTES  .
   . between the start of screen ram and
   text window ram:i.e. screen size
YB 330 SC=PEEK(88)+256*PEEK(89):TW=PEEK(6
   60)+256*PEEK(661):B=TW-SC
OE 349 REM  - LOAD BYTES USING MC ROUTINE
BR 350 F=7:REM number for IOCB routine wh
   en data is being LOADed
UX 355 GOSUB 900
HW 360 POKE 764,255:POKE 752,0
HS 370 ? "All done:";
OI 380 END
WS 899 REM  THIS IS THE IOCB ROUTINE
FQ 900 IOCB=848:POKE IOCB+2,F:POKE IOCB+4
   ,PEEK(88):POKE IOCB+5,PEEK(89)
WN 910 H=INT(B/256):L=B-H*256:POKE IOCB+8
   ,L:POKE IOCB+9,H
BW 920 I=USR(ADR(MC$)):CLOSE #1:RETURN
```

See right for listing conventions

Underline = INVERSE CHARACTERS · [ ] = CONTROL + CHARACTER · < > = INVERSE CONTROL + CHARACTER

The relevant bytes in the 16 byte IOCB (where "IOCB" is the first byte) which must be POKEd are as follows:

IOCB + 2 holds a number to signify the transfer command. We place an **11** in here to **PUT** (save) data or a **7** to **GET** (read) data.

IOCB + 4/5 hold the low byte and high byte respectively of the starting memory address the data is being transferred from or to. In our case, this will be the screen RAM pointers at locations 88 (low byte) and 89 (high byte).

IOCB + 8/9 hold the total number of bytes being transferred (called the "buffer length") in low byte/high byte format. You divide the number of bytes to be moved by 256 to split the figure into its low/high

TABLE 2		
MACHINE CODE ROUTINE TO CALL CIO		
op code	**decimal**	
PLA	104	Pull accumulator from the stack
LDX	162	Load the X register with..
	16	..the number 16 (signifies channel 1)
JMP	76	Jump to memory location ..
	86	.. low byte
	228	.. high byte (CIO ROM location at 86+228x256 = 58454)

components: The integer or whole number part is the high byte, while the remainder is the low byte.

LISTING 3 saves and loads the graphics mode and colours using BASIC, as before. The IOCB routine at LINES 900-920 is called up for the screen transfers. IOCB+2 is given a value of 11 (defined in LINE 150) for the OUTPUT routine and a value of 7 (defined in LINE 350) for the INPUT routine. The starting address (IOCB +4/5) and number of bytes (IOCB + 8/9) are the same for both operations.

The USR call in LINE 920 enables the machine code routine once the IOCB locations have been POKEd correctly. The machine code routine itself is set up in LINES 36 and 38 of Program 3. This simply calls up the Central Input Output facility to do the work, having first told it which IOCB we are using. The CIO operates on the channel number held in the CPU's X Register. Our routine puts a 16 here because we're using channel #1; a value of 32 would signify channel #2, 48 for channel #3, and so on (because each channel takes 16 bytes). TABLE 2 summarises the machine code details.

FINALLY ...

That just about covers the basics on input output control blocks. One final point is that, while the main programs here have been used to demonstrate the saving and loading of a graphics screen, IOCBs can also be used to transfer diverse blocks of data such as names and addresses, locations in an adventure game, or questions and answers in a quiz program. For instance, a list of phone numbers in a string called P$ could easily be transferred to disk or cassette using the procedures outlined here. In this case, the starting address of the data would be ADR(P$) and the number of bytes to be moved would be LEN(P$). Both of these numbers could be split into high/low bytes by dividing by 256 - LINE 910 of Program 3 shows how this is done. ●

NEW PHONE NUMBER FOR PAGE 6

Please note a small change in our phone number which is now

01785 241153

That is the same number with a 2 before the original number. No doubt BT will put you right if you still dial the old number

NOW I'VE GOT A PRINTER!

One of the most difficult items of equipment to choose is your first printer. John Foskett might be able to help out as he tells the story behind his purchase

About a year ago, I decided that it was time that I invested in a printer but was continually put off by the vast number available and of course by the nagging question "Would they work with the Atari 8-bit?" As far as connecting leads were concerned, there were many about nicely packaged in the shops which were ideal for a PC, but not for the Atari. When asking about printers in the various shops, I got many blank looks from sales staff upon mentioning "Atari" and got many extremely unhelpful comments like "What's that?". They tried to look knowledgable by throwing in phrases like "Epson standard" and "Centronics parallel interface". I was even given what must be the biggest cop-out of all time "If you have the software to drive it, then it can do anything". About as helpful as saying, if you have the money, then you could own the world!!!

WHAT TYPE OF PRINTER?

The first decision to be taken was to decide what type of printer would best suit my needs and the obvious choice for me was clear. I needed a letter quality (LQ) printer since I wanted to use it for all my correspondence and so a near letter quality (NLQ) 9 pin dot matrix printer was out of the question. Waiting for ink to dry and the inevitable smudging put me off of the ink jet range and so the answer became obvious, a 24 pin dot matrix printer.

Reading an article in the DGS (Dean Garraghty Software) newsletter number 15 about the Panasonic KX-P1123 told me that a trip to our local Argos store (Kingston) to look at one was called for and being one of the main showrooms they were bound to have one.

Looking at the KX-P1123, it was large and heavy but looked to be very well made with quite a complex control panel. It looked to be about the best choice of 24 pin dot matrix printers in the price range (about £175), but due to circumstances beyond my control I was in no position at that time to purchase one. A few weeks later, the new Argos catalogue was published and looking through it I was amazed to find that the KX-P1123 had been discontinued and replaced by the KX-P2123, a colour printer. I didn't need a colour printer and I certainly didn't see any point in paying another £30 to £40 for something I didn't need, so I asked the obvious question and was told the obvious answer "If it's not in the catalogue, it's not available". A trip to some other shops in our locality proved to be just as disappointing and so the obvious question that came to mind was "What was wrong with it?" or "Was it wrongly priced?". Prior to its disappearance wherever I saw the KX-P1123, there was the smaller Epson range of printers sitting beside it and, looking in our local Tandy store, I took an interest in the 24 pin dot matrix Epson LQ100 (presumably "LQ" stands for "Letter Quality").

Having decided to purchase an Epson LQ100, my next step was to consider driving it and a telephone call to Derek Fern (Micro Discount) was next on the agenda. Speaking to Derek about connecting a printer, he told me about the Microprint interface.

THE INTERFACE

The interface is basically a lead of about 1 metre in length with a small electronic unit built into a larger than normal Centronics connector at one end and the usual Atari connector at the other. The electronic unit converts the serial data output from the Atari into the parallel Centronics standard to suit the printer and it is powered directly from the Atari so no further power supplies are required. The interface unit simply connects the printer to a vacant peripheral connector which is most likely be a connector on the back of a disk drive.

An important point to note here is that the interface is the only lead necessary to connect a printer to the Atari. When purchasing a printer, the sales staff will most likely try to sell you a lead to connect it to a PC, telling you that such a lead is essential. Such a lead is NOT essential for the Atari Classic and would therefore be a waste of money.

SHOPPING AROUND

I decided to shop around to see if I could beat the Argos price and had a look through the "Computer Shopper" magazine. This proved to be a nightmare since its more like looking through a telephone directory. I finally went through the magazine and tore out every page which mentioned something to do with 24 pin dot matrix printers and then discarded the magazine. Looking through the torn out pages, I compared the prices and delivery charges of several different types of 24 pin dot matrix printers and found that the Epson LQ100 was one of the better buys for the price range. The cheapest supplier for the LQ100 turned out to be a company named "Computers by Post" of Wembley. I first tele-

phoned them to make sure that they had an LQ100 before ordering one and to confirm the price and order number. (I actually found that the printer was a pound cheaper!)

Including the delivery charges and VAT, I paid £119 for the LQ100, £20 cheaper than the special bargain price of £139 in Tandy (Sep/Oct 1994). The price in the latest Argos catalogue (Feb 1995) is £129, which I've still beaten by a tenner! I didn't have to wait long for the delivery either, I posted my order on the Tuesday and had the printer delivered the following Friday morning. I have no reservations about recommending "Computers by Post", telephone 081-982-6380.

One point of interest is that in the whole of the Computer Shopper magazine, I only saw the Panasonic KX-P1123 mentioned once!!

PREPARATION

After unpacking my new LQ100 printer, the first thing to do was to open it up and remove a piece of packing material (thick card) from the print head mechanism which was included to prevent damage during transit. Operating the printer without first removing this could damage the mechanism. The ribbon cartridge was packaged separately in the box and had to be fitted which was a simple matter of clipping it in place around the print head. The mains lead was also packaged separately and is about 2 metres long ready fitted with a 13 Amp mains plug.

A SLIGHT MOD

Before connecting the interface to the printer, it is necessary to remove the two small retaining clips from either side of the connector since these are intended for retaining a standard connector and not the interface. The retaining clips actually prevent the interface from being plugged into the printer and are best removed using a pair of long nosed pliers.

THE PRINTER ITSELF

Firstly the manual supplied with the printer is A5 in size and is called a user guide rather than a manual and is literally just that, a guide. The user guide gives some plainly obvious information but leaves the reader to work out the more complicated details such as how to change the size of the scalable fonts.

The printer itself is quite compact measuring about 15" (375mm) wide, about 10" (250mm) deep, about 5" (125mm) high and weighs 10lbs (4.5kg). The paper guide when fitted increases the height to about 10" (250mm). Looking at the printer from the front, the Centronics connector, for connecting the interface, is on the left hand side and the mains lead plugs into a socket on the right hand side.

The printer may be used in either the normal flat position or if required in an upright position. The upright position allows the use of the single sheet manual feed which is underneath the printer when viewed in the flat position. In the flat position, the paper tray is used which has to be fully extended before use and is designed to hold up to 50 A4 sheets.

THE CONTROLS

Apart from the main on/off switch and the "power on" indicator, the LQ100s control panel comprises of just two push buttons and two LED indicators. There are seven built-in fonts, each selected in sequence by pressing the left hand push button and indicated by the two indicators with a combination of a steady glow or flashing. The right hand push button is for "form feed" purposes such as to remove a sheet after printing or to continue printing after refilling the paper tray.

If the printer is switched on whilst holding down one or both of the two push buttons then the built-in functions are actioned as follows:

1) Switching on whilst holding both push buttons prints the Epson LQ100 test sheet
2) Switching on whilst holding the left hand (font) push button enables the set-up procedure
3) Switching on whilst holding the right hand (form feed) push button prints the current characters

Further use of the two push buttons is made as a Yes or No option during the set-up procedure which the LQ100 stores in memory and uses as the default every time the printer is subsequently switched on.

There is an internal lever for altering the paper thickness setting which has to used to accommodate the printing of labels and envelopes.

CHARACTER SETS AND ENHANCEMENTS

The LQ100 has several different character sets built-in to suit different languages such as Arabic, Greek, Russian, etc. Some character sets have graphic characters allowing simple diagrams to be printed whilst others have continental characters.

The printer can be software controlled to provide enhancements to any of the characters such as bold, underline, italic, outline, shadow, condensed, proportional, etc. The actual character sets themselves can be changed within a single document under software control to allow different languages to be mixed such as for printing translation lists from English to Arabic, Russian to Greek, etc.

TECHNICAL DETAILS

The LQ100 printer has an 8K buffer, a print speed of 72 CPS (Characters per Second) in letter quality (LQ) and 200 CPS in draft. The noise level of the printer is 50dBA.

The printer has 7 built-in fonts, 5 are letter quality (LQ) which are Roman, Sans Serif, Courier, Prestige and Script. It has 2 draft fonts which are Draft and Draft condensed. The Roman and Sans Serif fonts are scalable in size from 8 point to 32 point in 2 point increments.

PUSH FEED TRACTOR

An optional push feed tractor unit is available for use with continuous sprocket fed fanfold paper and self-adhesive label sheets. The push feed tractor fits onto the back of the printer and allows the fanfold paper to be fed into the printer from below.

SINGLE SHEET PAPER FEED

When looking inside the printer, the two pressure rollers can be seen to be a little off-set to the left which allows the use of smaller sized sheets. As a guide, I would recommend using a minimum sheet size of A5, which has half the area of an A4 size sheet

and about two thirds of the width.

Ensuring that a sheet feeds squarely is quite a difficult process because the sheet suddenly gets "grabbed" and drawn into the printer whether you are ready or not. When sheets do not feed square, they may be removed by feeding them right through the printer by pressing the form feed push button. I do not recommend trying to pull a mis-fed sheet sideways in an attempt to square it because of the danger of partly withdrawing it. This could result in the top line (or lines) being printed off of the top of the sheet and onto the roller which could also lead to a paper jam because of the inevitable creasing of the top edge of the sheet. One way of ensuring a square paper feed every time is to make up a jig out of a piece of thick card, how to make such a jig becomes fairly obvious when looking underneath the printer.

IN CONCLUSION

It was not too long ago that a 24 pin printer was beyond most people's price range and even the cheapest 9 pin printers were around £120. Now you can get top quality printing from your Atari Classic for a rock bottom price.

It is fairly obvious that the days of the 9 pin printer are numbered because, chances are, that if you wait a little longer you might pick up a 24 pin printer for just £99! I still feel that £119 is not a bad price for quality printing though and would recommend the Epson LQ100, unless you know of a better bargain!

ROBOMASH

Paul Rixon discovers yet another 'oldie' that becomes the latest new release for the Classic

The enthusiasts who run Tyne & Wear Atari User Group (or TWAUG if you're in a hurry) have just published a new game called ROBOMASH. It was written by Scott Johnson of Oregon in the US and was originally destined for Analog Magazine, which unfortunately didn't survive long enough to use it.

The story is there's been a massive disaster at a local nuclear power plant, making Chernobyl look like a chip pan fire. The government have sent in a recovery droid to clear up the mess and, needless to say, it's you in the driving seat. Your objective is to pick up chemical debris, but naturally there's a host of other problems to overcome.

The idea is that you zip around the screen, collecting useful objects and avoiding unpleasant ones. You are pursued by Security Robots whose circuits were adversely affected by the meltdown. They're intent on your annihilation, but you can fool them by placing Cadmium blocks so they change direction and collide. The secret of this game is knowing what all the various screen components do. For example, steel walls are perfectly safe, while electric ones most definitely aren't! Doors need to be unlocked with keys, bombs are best avoided, whilst the exit portal is the place to be once you've finished each level. Good luck!

The graphics are fairly simple, albeit not without a reasonable measure of animation. Sound effects are similarly straightforward. Anyway, let's be clear about one thing - this game is not for beginners! On each screen there's a lot going on and staying out of trouble is easier said than done. There are 10 screens, with 65 possible difficulty settings. That makes 650 levels in all, so I've only got 649.5 to go ...

For those people who'd argue they could do a better job designing screens themselves, an opportunity is provided on the flip side of the disk. The Robomash Construction Set allows you to place any of the obstacles, scenery and other items onto a blank playfield. You can save the screens to disk and then load them into the Robomash game itself.

TWAUG deserve support for their continuing efforts to revive the fortunes of 8-bit Ataris. I hope to present a detailed report of the group's activities in the next issue of NAU.

ROBOMASH is available on disk from TWAUG. Write to P.O. Box 8, Wallsend, Tyne & Wear NE28 6DQ for details.

A CULT FOLLOWING?

Supporting the Atari has always been a bit of a cult, but what other cults do Atarians follow? Irishman Avram Dumitrescu (honest he's Irish!) has been finding out

Atari owners are a strange bunch. No other computer has such a strong legion of followers who pour so much dedication into their little box of silicon chips. Through the thick and thin of software titles a true Classic owner will defend their machine, stating how much better it is than any other 8-bit and will continue to reign supreme with all sorts of new hardware enhancements from the bubbling pools of creativity in Poland and Germany.

Very few people give up all their time to their computer (this minority of poor souls run disk and paper magazines) though, unfortunately, too many Atarians do not spend their remaining free time interacting with humans. Instead, they have other cults to hide in.

I have bee investigating a few of the religions that lots of Atari owners subscribe to and to which they end up giving all their money, time and energy. If an Atarian you know happens to worship at the altar of Adams and drinks so much coffee they'd be better with a coffee-machine implant, gently woo them away and encourage them back to society. This article will help you identify those involved.

This guide is only a preliminary study of some of the sub-cultures Atarians have been known to lurk in. I'll try and keep you informed of any more cults I discover in the future but, for now, tell those inflicted: "It's good to talk."

THE HITCH-HIKER'S GUIDE TO THE GALAXY

A funny science-fiction radio play first broadcast in 1978 that evolved into a number of books (different from the radio series) and a television version. Infocom released HHGG - The Computer Game, several songs have been composed about it and, recently, a picture book with the text from the first novel has been created. A film is, supposedly, being worked on.

The books and all other versions centre around an incredible travel guide (the HHGG) that has entries on *EVERY* subject in the universe. As new planets, life-forms and, most importantly, life-styles constantly form researchers are employed by Megadodo publications to fill the missing gaps. Douglas Adams uses several very memorable characters to move through his fascinating and hilarious universe and tells the reader, for instance, how to fly and the actual meaning to life.

What makes this a cult is the number of formats the one basic story is in, the humour that never loses its freshness and the wealth of very useable quotes:

ON CARS - Looks like a fish, moves like a fish, steers like a cow.

ON LIFE (AN UNOPTIMISTIC VIEW) - Loathe it or ignore it, you can't like it.

ON RESTAURANT BILLS - numbers written on restaurant cheques within the confines of restaurants do not follow the same mathematical laws as numbers written on any other pieces of paper in any other parts of the universe.

Douglas Adams has also written a number of other books. His best non-HHGG piece is the wildlife book Last Chance to See.

Anyone deeply infatuated with the antics of Marvin the Paranoid Android et al can get the latest news from ZZ9 Plural Z Alpha's 'Mostly Harmless' magazine. It costs £5 a year and you can get details from Noel Collyer at 26, Northampton Road, Croydon, Surrey CR0 7HA.

STAR WARS

1997 sees the twentieth anniversary of this trilogy of 'Space Westerns' by director George Lucas. The three movies were phenomenally successful because they appealed to youngsters and adults. There is no sex, offensive language or violence but beautifully intricate spaceships, an exciting plot that isn't too taxing, wonderfully varied alien creatures and a galaxy of imagination.

I was too young to appreciate the first Star Wars cult but it seems to be happening all over again. Walk into any sci-fi shop and, along with the Japanese Manga comics and Star-Trek merchandise you will see Star Wars books, technical manuals, holograms, pencil cases, collectors cards and so on. If you have any of the old spaceships or toys that were launched to tie in with the film, hold on to them. Single figures (in good condition) sell for around £1 to £3 while my local sci-fi shop have sold unopened, boxed figures for £20 and boxed spaceships can earn you around £60 (with prices like that I'm tempted to call this, not a cult, but a religion. Please also remember that these prices are not definite. Visit the shops and enquire).

Be prepared for another wave of Star Wars mania when parts one, two and three are released in 1997. Star Wars - A New Hope, the Empire Strikes Back an Return of the Jedi (parts four, five and six) MAY be re-shown in cinemas during Christmas 1995 but the videos can be bought for around eleven pounds (Interestingly, laser disc versions of parts four to six can be found but retail for the measly pittance of three HUNDRED pounds...). May the Force be with you (and your bank manager plus wife/mother if you get the laser discs).

DEATH METAL MUSIC

Like the extreme of programming languages (assembly language) this is the extreme of music. It is noisy, thrashy and only a barrage of confused growls and screams to those un-experienced to this kind of aural entertainment. Assembly programmers usually give credit to at least one of these groups - try reading the entire message in a demo and Slayer or something will pop up. Death Metal bands tend to be driven by hate against the system, life, girls, men; pick any topic and some group will be spitting lots of phlegm

over it. Perhaps, like machine code, the pain experienced from it invokes a kind of pleasure? If you intend sampling some of these bands try Slayer, Anthrax, Metallica, Rage Against the Machine or Pantera.

STAR TREK

You know this is a big cult if the idea of Star Trek money was launched, briefly (or it may have been telephone cards - my memory's not completely verbatim at the wizened old age of nineteen).

Since the first episode, The Cage, Gene Rodenberry's space adventures have gathered fans like a cartoon snowball, resulting in world wide recognition, seven films (Star Trek: Generations is the latest) and several spin-off shows from Rodenberry Limited: The Next Generation/Deep Space Nine/Star Trek Voyager.

If you haven't experienced any Star Trek, give it a go. The original has a lot of tacky monsters but, quite often, very gripping scripts, whereas Next Generation doesn't shine as well in the story department (the holodeck seems like a device to give more variety to the stories but can often leave the space aspect too far behind) but the fantastic ships and alien make-up balance this shortcoming. Deep Space Nine isn't bad but doesn't measure up to the previous shows and Voyager hasn't been shown on UK or Irish television yet.

Other sci-fi shows you may be spurred on to see are: X Files (humourless but enthralling programme with two FBI agents solving some quite unusual cases), Babylon 5 (can't comment on this one because I've only seen a few minutes of it), The Outer Limits (there have been a few thrilling and exciting episodes but the majority are average and sometimes quite flat. The title music is very good!) and Gerry Anderson's (Thunderbirds, Captain Scarlet etc.) latest Space Precinct. This 'cops-in-space' show can be summed up with this wonderful line I read in one of its reviews somewhere: "One million pounds have been spent on each episode. Obviously £999,995 have gone on special effects because if any more than a fiver has been spent on scripts then the producers have been ripped off."

And back to Star Trek. Give it a go and become a trekkie, attending conventions, dressing up in Star Fleet uniforms and so on. Remember, before you embark, you can become a great follower but never the greatest. Gene had his ashes launched into space...

SCI-FI LITERATURE

Computers and Science Fiction go hand in hand and the future, according to the words of many of these authors, could become dominated by ever-increasingly intelligent machines (read 'The Final Question' by Isaac Asimov for the ultimate computer).

There are hundreds of authors in this genre but the most famous stalwarts are Arthur C Clarke (plausible sci-fi), Asimov (a warmer writer than Clarke and was one of his good friends) and Douglas Adams (see the Hitch-Hiker's Guide to the Galaxy paragraph).

Three sources supply this cult. Try any bookshop, newsagents for the (bi)monthly magazines (Beyond is an excellent new English magazine) or, best of all (to your cash fund) your local library.

COFFEE

The manna of the programmer. Ever since man started thinking in binary the juice of the coffee bean has been essential brain-nutrient. Assembly language programmers swear by it when bank-switching, Basic programmers spill it over their Atari Basic Reference manuals and computer scribblers just can't get enough of it.

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DISK BONUS

THE CITADEL

by Joel Goodwin

"The Citadel" is a puzzle game for one player which was originally released by Tiger Developments. Thanks to New Atari User it now sees the light of day again!

Why is someone running around with an explosive strapped to their back trying to escape an old mountain fortress filled with teleporters and bombs? Because it's good television, that's why. Week after week, contestants brave the twenty-six rooms of the Citadel only to discover that it's a lot easier to lose that healthy complexion than gain the title of Citadel Champion with all the prestige and (less importantly of course) money it brings.

In the auditions all you had said was, "I'd rather be Citadel Champion than win the lottery!" After that the TV producers decided that they had found this week's contestant. When they approached you with a large backpack and said it contained high explosives you started to lose your enthusiasm a little. You are sure the phrase 'second thoughts' refers to the fact that such thoughts come a second too late. Ah, well. Such is life.

THE GAME

The idea is simple. In each room, you have to reach the exit (using the joystick) within a specified time limit otherwise the backpack, which cannot be removed, will explode. Don't be too disheartened because you have three attempts to solve each room before you really go up in smoke. At the foot of the display you will see the room number, the number of attempts remaining (listed as white crosses) and the time remaining.

The obstacles in your way can be listed as follows.

Blocks: These are fairly light and you can push a number of these at once

Boulders: Quite heavy; you can only push one of these at a time

Pits: There are square pits and round pits. Blocks fill up square pits just as boulders fill up round pits. If you attempt to push a block onto a round pit or boulder onto a square pit then the block/boulder will get stuck and cannot be pushed any further

Teleporters: If you enter a teleporter you will emerge out of another. You cannot tell where a teleporter leads to without entering it yourself. You cannot push anything into a teleporter

Bombs & Detonators: There are plenty of bombs lying around. They are just as heavy as boulders and so you can only push one at a time. Every bomb in a room will explode if you step onto a detonator so be sure you are not next to any bombs when you do this.

OPTIONS

On the title screen you can change the speed by pressing SELECT. This is so you can adjust the game control to suit yourself (it is not intended as a difficulty setting). Pressing OPTION will bring up a key displaying all of the objects in the game. Also, every room has an associated password and this can be entered, via the keyboard, on the title screen.

Finally, you may get a situation during the game where you cannot get out of a room without restarting. Pressing START will abort the current attempt while OPTION will end the game altogether and return you to the title screen.

I wish you luck inside the Citadel. Every room has a solution - nothing is impossible, not even rooms 25 and 26! I'll tune in to the show tonight to see if you make it through. If not, there's always next week's contestant ...

Thanks to Neil Ottaway for originally agreeing to release The Citadel through Tiger Developments



ONE TWO EIGHT

Andy Guillaume presents some stunning graphics effects that you can include in your own programs

This program demonstrates the use of a Display List Interrupt (DLI) to change the colours on each screen line over the entire height of the screen. Five areas of memory (which I call Colour Tables) are used to hold the colour of a particular screen register at a certain line, so to alter the colours at a particular line you need only POKE the colour number (Colour*16 + Luminance) required into the relevant memory location. This gives you 5 Colours on each line (Locations 708-712) although 711 is not usually needed).

The program works by setting a DLI at the top of the screen, on one of the first Display List (DL) lines. The DLI routine then loops around for the required number of lines setting the colours as needed from the Colour Tables. The routine will work in any Graphics mode but you may need to alter the position of the DLI in the DL or the number of lines used. Sometimes keyboard input is affected, just reduce the number of lines used or only use the Console keys or Joystick for input (the 200 on line 90, the 10th number in the DATA statement is the number of lines that the DLI runs for).

Have a look at the Assembler listing (OTEDLI.ASM) to see how it works. X is used as an Index register into the Colour Tables. The value is loaded and stored in the appropriate location for each colour. X is incremented and the routine loops around until all of the lines have been used. Note that the first value loaded is also stored into WSYNC (54282) to get a smooth colour change.

Type in and Save the main program "OTE.BAS". This pokes in the DLI machine code and sets up the Colour Tables and graphics screen (the program will just return to GR.0 if RUN now!). This program is just the core routines for setting up everything. The following demo routines show some ways of achieving nice graphics effects in Turbo BASIC to spruce up title screens and such like.

After Saving, type NEW to clear program memory and type in any of the demo extension routines. You should then save these in Listed format i.e. LIST "D:RAINBOW.OTE"

After Listing the required routines to disk, re-load OTE.BAS, then merge the required routine i.e. ENTER "D:RAINBOW.OTE". Then RUN.

The Colour Set addresses start with C0S at 32768 then C1S, C2S, C3S and C4S every 256 bytes. These refer to Playfield registers 0-4 respectively (Locations 708-712). Thus to set a colour on line 100, just POKE CnS +100 with the Colour number!!

Note that the Colour sets are cleared by a quick method, just set a Graphics mode and MOVE blank screen to the area required to be cleared. I also use this method for clearing PMG memory in other programs for a quicker setup.


```
TO 1 REM ################################
LB 2 REM #  ONE TWO EIGHT COLOURS  #
XG 3 REM #      (TURBO BASIC)      #
OO 4 REM #   by Andy Guillaume     #
KA 5 REM # ----------------------- #
ZT 6 REM # NEW ATARI USER - SEP 95 #
TU 7 REM ################################
NN 8 REM
GN 10 REM  SETUP VARIABLES
YT 20 C0S=32768:C1S=C0S+256:C2S=C1S+256
OP 30 C3S=C2S+256:C4S=C3S+256
MY 40 REM  Load DLI code
ME 50 IF PEEK(1536)=72 THEN 110
TL 60 FOR N=1536 TO 1582:READ B:POKE N,B:
   NEXT N
RI 70 DATA 72,138,72,162,0,189,0,132,141,
   10,212,141,26,208,189,0,128,141,22,208
NX 80 DATA 189,0,129,141,23,208,189,0,130
   ,141,24
QC 90 DATA 208,189,0,131,141,25,208,232,2
   24,200,208,218,104,170,104,64
PC 100 REM  Clear Colour sets
FA 110 GRAPHICS 20:SCN=DPEEK(88)
NM 120 MOVE SCN,C0S,256
OD 130 MOVE SCN,C1S,256
OU 140 MOVE SCN,C2S,256
PL 150 MOVE SCN,C3S,256
QC 160 MOVE SCN,C4S,256
HO 170 REM  Setup screen
ZH 180 GRAPHICS 20:REM  any GR. mode
FY 190 SCN=DPEEK(88):DL=DPEEK(560)
OM 200 POKE DL+2,240:DPOKE 512,1536
OG 210 POKE 54286,192
```

```
10 ;128 Colour DLI
20 ;By A.Guillaume
30 ;May 1995 for NAU
40 ;
50 COL0S=32768
60 COL1S=COL0S+256
70 COL2S=COL1S+256
80 COL3S=COL2S+256
90 COL4S=COL3S+256
0100 WSYNC=54282
0110 COLPF0=53270
0120 COLPF1=53271
0130 COLPF2=53272
0140 COLPF3=53273
0150 COLPF4=53274
0160  *=1536
0170 DLI
0180  PHA          ;Push A
0190  TXA          ;X into A
0200  PHA          ;Push A
0210  LDX #0       ;Set X to 0
0220 LOOP
0230  LDA COL4S,X  ;Load colour number
0240  STA WSYNC    ;Wait for sync.
0250  STA COLPF4   ;Store colour
0260  LDA COL0S,X  ;Same for each
0270  STA COLPF0   ;colour register
0280  LDA COL1S,X
0290  STA COLPF1
0300  LDA COL2S,X
0310  STA COLPF2
0320  LDA COL3S,X
0330  STA COLPF3
0340  INX          ;Increment X
0350  CPX #200     ;Reached 200th line?
0360  BNE LOOP     ;If NO, goto LOOP
0370  PLA          ;Pull A
0380  TAX          ;A into X
0390  PLA          ;Pull A
0400  RTI          ;Return from DLI
0410  .END
```

ONE TWO EIGHT
THE DEMO ROUTINES

```
YM 1000 REM  RAINBOW
GR 1010 C=%0
UC 1020 POKE C4S,C
TN 1030 -MOVE C4S,C4S+%1,197
SA 1040 C=C+%1:IF C>255 THEN C=%0
OD 1050 GOTO 1020
```

RAINBOW (RAINBOW.OTE)

The commonest XL effect. Easily achieved by POKEing the background Colour set (4. C4S) with the Colour number (C) at line 0 in the Colour table. The -MOVE command is then used to move the chunk of memory covering the screen in the Colour table down by one line. C is then incremented and the program loops around.

```
AN 1000 REM  INWARDS
GR 1010 C=%0
GB 1020 POKE C4S,C:POKE C4S+198,C
WF 1030 -MOVE C4S,C4S+%1,98:MOVE C4S+100,
   C4S+99,99
SA 1040 C=C+%1:IF C>255 THEN C=%0
OD 1050 GOTO 1020
```

INWARD RAINBOW (INWARD.OTE)

The same effect as Rainbow but this time only half the screen is moved down, and the same method is used as above to Poke C into the last line and move up the bottom half of the screen.

```
TQ 1000 REM  SHADEBAR
FD 1010 C=%0:M=%2
AR 1020 POKE C4S,C:-MOVE C4S,C4S+%1,198
AT 1030 C=C+M:IF (C MOD 16)=%0 AND M=-%2
   THEN M=-M:C=C+16:GOTO 1050
JF 1040 IF (C MOD 16)=%0 THEN M=-M:C=C+M
ZA 1050 IF C>255 THEN C=%0
OG 1060 GOTO 1020
```

SHADED BARS (SHADEBAR.OTE)

This gives a downward moving series of shaded coloured bars. M is used to control the direction that C is altered, first rising in Luminance then declining to create the shaded effect. When C MOD 16 is equal to 0 (the remainder when the colour number is divided by 16 equals 0, meaning that it's at the lowest luminance) and M is -2 (the shading is declining, which means this colour is done), C is raised by 16 to start on the next bar.

```
TT 1000 REM  MOVING BAR#1
EN 1010 Y=%0:M=%1:BAR=C4S+256:COL=48
UY 1020 POKE BAR,%0:POKE BAR+16,%0:POKE B
   AR+17,%0
PM 1030 FOR N=%1 TO 8:POKE BAR+N,COL:COL=
   COL+%2:NEXT N
RY 1040 FOR N=9 TO 15:COL=COL-%2:POKE BAR
   +N,COL:NEXT N
RG 1050 MOVE BAR,C4S+Y,17
AA 1060 Y=Y+M:IF Y=181 OR Y=%0 THEN M=-M:
   Y=Y+M
PW 1070 GOTO 1050
```


MOVING SHADED BAR #1 (MOVEBAR1.OTE)

(Bottom of previous page)

Gives the famous bouncing bar effect. The bar colours are set up at address BAR then moved to the appropriate line in the background Colour table (C4S). As the first and last lines of BAR are set to colour 0 (Black), when the position of the bar in C4S is moved up or down by one line the excess line from the previous move is deleted. If the Y position of the bar is 0 or 181 the direction, M, is made equal to -M i.e. 2 becomes -2 and -2 becomes 2 to reverse the bars direction of movement.

```
UP 1000 REM  MOVING BAR#2
EN 1010 Y=%0:M=%1:BAR=C4S+256:COL=48
GS 1020 Y2=181:M2=-%1:BAR2=BAR+18:COL2=12
   8
VB 1030 POKE BAR,%0:POKE BAR+16,%0:POKE B
   AR+17,%0
YP 1040 POKE BAR2,%0:POKE BAR2+16,%0:POKE
    BAR2+17,%0
PS 1050 FOR N=%1 TO 8:POKE BAR+N,COL:COL=
   COL+%2:NEXT N
SE 1060 FOR N=9 TO 15:COL=COL-%2:POKE BAR
   +N,COL:NEXT N
WO 1070 FOR N=%1 TO 8:POKE BAR2+N,COL2:CO
   L2=COL2+%2:NEXT N
GW 1080 FOR N=9 TO 15:COL2=COL2-%2:POKE B
   AR2+N,COL2:NEXT N
KO 1090 MOVE BAR,C4S+Y,17:MOVE BAR2,C4S+Y
   2,17
ZK 1100 Y=Y+M:IF Y=181 OR Y=%0 THEN M=-M:
   Y=Y+M
CA 1110 Y2=Y2+M2:IF Y2=181 OR Y2=%0 THEN
   M2=-M2:Y2=Y2+M2
RJ 1120 GOTO 1090
```

MOVING SHADED BAR #2 (MOVEBAR2.OTE)

The same as Moving bar #1 but this time with two bars. This creates a bug however, when the two lines cross and they have no priority as to which should be in front.

```
VL 1000 REM  MOVING BAR#3
EN 1010 Y=%0:M=%1:BAR=C4S+256:COL=48
GS 1020 Y2=181:M2=-%1:BAR2=BAR+18:COL2=12
   8
UJ 1030 SVS=BAR2+18:MOVE C4S,SVS,200
VE 1040 POKE BAR,%0:POKE BAR+16,%0:POKE B
   AR+17,%0
YS 1050 POKE BAR2,%0:POKE BAR2+16,%0:POKE
    BAR2+17,%0
PV 1060 FOR N=%1 TO 8:POKE BAR+N,COL:COL=
   COL+%2:NEXT N
SH 1070 FOR N=9 TO 15:COL=COL-%2:POKE BAR
   +N,COL:NEXT N
WR 1080 FOR N=%1 TO 8:POKE BAR2+N,COL2:CO
   L2=COL2+%2:NEXT N
GZ 1090 FOR N=9 TO 15:COL2=COL2-%2:POKE B
   AR2+N,COL2:NEXT N
CL 1100 MOVE BAR,SVS+Y,17:MOVE BAR2,SVS+Y
   2,17
OE 1110 MOVE SVS,C4S,200
ZQ 1120 Y=Y+M:IF Y=181 OR Y=%0 THEN M=-M:
   Y=Y+M
CG 1130 Y2=Y2+M2:IF Y2=181 OR Y2=%0 THEN
   M2=-M2:Y2=Y2+M2
NO 1140 GOTO 1100
```

MOVING SHADED BAR #3 (MOVEBAR3.OTE)

Solves the above mentioned bug by using a Shadow Colour table (SVS), to first position both bars within this area then move the whole area of memory to C4S.

RANDOM SHADED BARS (RANDBARS.OTE)

(Listing overleaf)

Displays shaded bars at random Y positions down the screen. The bars are first set up in memory at BAR then moved to C4S as required.

continued 

```
ZS 100 GRAPHICS 10
AM 1000 REM  SIMPLE DEMO
SD 1010 Y=%0:BAR=C4S+256:COL=%0:M=BAR
YD 1020 RC=%0:BC=%0
BQ 1030 REM  SETUP BARS
LS 1040 FOR I=%0 TO 15
MG 1050    FOR N=%0 TO 7:POKE M+N,COL:COL=
   COL+%2:NEXT N
LZ 1060    FOR N=8 TO 14:COL=COL-%2:POKE M
   +N,COL:NEXT N
QM 1070   M=M+15:COL=COL+14
FN 1080 NEXT I
WA 1090 REM  SETUP TEXT
ZP 1100 POSITION 2,%2:? #6;"SIMPLE  ote D
   EMO"
QA 1110 POSITION 9,5:? #6;"BY"
NW 1120 POSITION %3,6:? #6;"ANDY GUILLAUM
   E"
IW 1130 POSITION 5,9:? #6;"JUNE  1995"
AJ 1140 REM  RANDOM BARS
KQ 1150 Y=RAND(64):M=RAND(16)*15:MOVE BAR
   +M,C4S+Y,15
YZ 1160 MOVE BAR+M,C4S+178-Y,15
SX 1170 REM  CYCLING BARS
SD 1180 M=RAND(16)*15:MOVE BAR+M,C0S+32,1
   5
ZP 1190 REM  RAINBOW
EE 1200 POKE C1S+31,RC:-MOVE C1S+31,C1S+3
   2,16
CV 1210 POKE C0S+160,RC:MOVE C0S+145,C0S+
   144,16
YO 1220 RC=RC+%1:IF RC>255 THEN RC=%0
ME 1230 REM  SHADED BARS
TX 1240 MOVE BAR+BC,C0S+96,15
HK 1250 MOVE BAR+224-BC,C0S+80,15
OG 1260 BC=BC+16:IF BC=240 THEN BC=%0
QM 1270 GOTO 1150
```

THE SIMPLE OTE DEMO (OTEDEMO.OTE)

A simple demo which pulls together several of the above effects and demonstrates their use.

```
VF 1000 REM  RANDOM SHADED BARS
SD 1010 Y=%0:BAR=C4S+256:COL=%0:M=BAR
LM 1020 FOR I=%0 TO 15
MA 1030    FOR N=%0 TO 7:POKE M+N,COL:COL=
   COL+%2:NEXT N
LT 1040    FOR N=8 TO 14:COL=COL-%2:POKE M
   +N,COL:NEXT N
QG 1050    M=M+15:COL=COL+14
FH 1060 NEXT I
EG 1070 Y=RAND(178):M=RAND(16)*15
TU 1080 MOVE BAR+M,C4S+Y,15
RC 1090 GOTO 1070
```

TWO HUNDRED AND FIFTY SIX COLOUR PALETTE (TFSCOLS.OTE)

(Next page)

Displays the full 256 available colours by switching to GR.9, 16 shade mode. C4S is set up as 16 bands down the screen, one for each successive colour. Lines are then plotted across the screen in 16 vertical bands, one for each luminance.


```
XS 100 GRAPHICS 9
CR 1000 REM  256 Colours
KO 1010 COL=%0
HT 1020 FOR N=%0 TO 191 STEP 12
XW 1030    FOR I=N TO N+11:POKE C4S+I,COL:
   NEXT I
KL 1040    COL=COL+16:NEXT N
LA 1050 COL=%0
MI 1060 FOR N=%0 TO 79 STEP 5
AC 1070    COLOR COL:COL=COL+%1
ND 1080    FOR I=N TO N+4:PLOT I,%0:DRAWTO
    I,191:NEXT I
HT 1090 NEXT N
NC 1100 GOTO 1100
```

```
XS 100 GRAPHICS 9
NH 1000 REM  Move 256 Colours#1
KO 1010 COL=%0
HT 1020 FOR N=%0 TO 191 STEP 12
XW 1030    FOR I=N TO N+11:POKE C4S+I,COL:
   NEXT I
KL 1040    COL=COL+16:NEXT N
LA 1050 COL=%0
MI 1060 FOR N=%0 TO 79 STEP 5
AC 1070    COLOR COL:COL=COL+%1
ND 1080    FOR I=N TO N+4:PLOT I,%0:DRAWTO
    I,191:NEXT I
HT 1090 NEXT N
IA 1100 N=PEEK(C4S+191):-MOVE C4S,C4S+%1,
   191:POKE C4S,N
NF 1110 GOTO 1100
```

MOVE 256 COLOURS #1 (MOVETFS1.OTE)

Draws the 256 colour palette and moves it down the screen with a wrap around effect.

```
XS 100 GRAPHICS 9
SJ 1000 REM  MOVE 256 Colours#2
JS 1010 FOR N=%0 TO 191 STEP 32
MR 1020    COL=%0:FOR I=N TO N+15:POKE C4S
   +I,COL:COL=COL+16:NEXT I
AA 1030    FOR I=N+16 TO N+31:COL=COL-16:P
   OKE C4S+I,COL:NEXT I
HE 1040 NEXT N
KD 1050 FOR N=%0 TO 79 STEP 32
DL 1060    COL=%0
JD 1070    FOR I=N TO N+15:COLOR COL:COL=C
   OL+%1:PLOT I,%0:NEXT I
CS 1080    FOR I=N+16 TO N+31:COL=COL-%1:C
   OLOR COL
NC 1090       IF I<80 THEN PLOT I,Y
BH 1100    NEXT I
GX 1110 NEXT N
GI 1120 FOR Y=%0 TO 191
EK 1130    MOVE DPEEK(88),DPEEK(88)+(Y*40)
   ,40
LX 1140 NEXT Y
IP 1150 N=PEEK(C4S+191):-MOVE C4S,C4S+%1,
   191:POKE C4S,N
QH 1160 GOTO 1150
```

MOVE 256 COLOURS #2 (MOVETFS2.OTE)

Another 256 colour moving screen demo. In this one the top line is drawn first, then copied by using MOVE to all other lines down the screen. The colours move down as before.

Overleaf are three more listings that show some other techniques for achieving effects. See if you can work out how these last three work.

```
WT 100 GRAPHICS 31
XS 1000 REM  BOULDERDASH EFFECT
SB 1010 FOR X=%0 TO 159 STEP 6
QT 1020    COLOR %1:PLOT X,%0:DRAWTO X,191
XM 1030    COLOR %2:PLOT X+%1,%0:DRAWTO X+
   %1,191
LK 1040 NEXT X
UU 1050 COLOR %3:TEXT 30,92,"BOULDERDASH?
   "
HR 1060 BC=138
CP 1070 FOR N=%0 TO 191
XT 1080    POKE C4S+N,BC:POKE C0S+N,BC:POK
   E C1S+N,BC
HK 1090    I=N MOD 8
IY 1100    IF I=%0 OR I=%1 THEN POKE C0S+N
   ,%0:POKE C1S+N,%0
KP 1110    IF I=%2 OR I=%3 THEN POKE C0S+N
   ,14:POKE C1S+N,%0
HA 1120 NEXT N
KQ 1130 N=PEEK(C0S+191):I=PEEK(C1S+191)
ZX 1140 -MOVE C0S,C0S+%1,191:-MOVE C1S,C1
   S+%1,191
VK 1150 POKE C0S,N:POKE C1S,I
WL 1160 REM GOTO 1130:REM  SKIP SCROLL
NC 1170 MOVE SCN+2880,SCN+2840,1920
RT 1180 MOVE SCN+2840,SCN+4760,40
PQ 1190 GOTO 1130
```

BOULDERDASH EFFECT (BDEFFECT.OTE)

Similar to the moving background on the title screen of Boulderdash 1. Again, this should be done by the DLI itself for maximum smoothness. Slight jerkiness between vertical moving lines is caused by both colour sets not being moved simultaneously - due to BASIC speed restrictions and using two MOVE commands. Try modifying the program to use just one MOVE command to counteract this. The scrolling title line is an extra effect which can be skipped to speed up the background movement.

```
WT 100 GRAPHICS 31
DL 1000 REM  MOVING GRID
QX 1010 COLOR %1
UG 1020 FOR X=%0 TO 159 STEP 8
IL 1030    PLOT X,%0:DRAWTO X,191
LK 1040 NEXT X
CJ 1050 FOR N=%0 TO 191
PC 1060    POKE C0S+N,14
ZA 1070    IF N MOD 8=%0 THEN POKE C4S+N,1
   4
HQ 1080 NEXT N
SB 1090 N=PEEK(C4S+191)
NM 1100 -MOVE C4S,C4S+%1,191
AK 1110 POKE C4S,N
RJ 1120 GOTO 1090
```

MOVING GRID (MOVEGRID.OTE)

A grid of squares moves down the screen. Should really be done by the DLI itself for maximum smoothness. The ripple effect is caused by the DLI data being moved before the DLI has had time to cover the entire screen.

...and *finally*

SHADED WIGGLERS (WIGGLERS.OTE)

(Next page)

Several shaded "Wigglers" move up and down the screen.


```
CB 5 DIM SQ(5,%2)
XJ 100 GRAPHICS 23
QP 210 REM
SC 1000 REM  WIGGLERS
CX 1010 DEG
IU 1020 RESTORE 1030
BD 1030 DATA 10,6,11,5,9,8,12,5,11,4,10,1
   0
DR 1040 FOR N=%0 TO 5
UG 1050    READ B,C
ND 1060    SQ(N,%0)=B:SQ(N,%1)=C:SQ(N,%2)=
   %0
HN 1070 NEXT N
BZ 1080 FOR Y=10 TO 84
BG 1090   FOR N=%0 TO 5
BU 1100     X=30+(N*20)
KP 1110     AN=SQ(N,%2)
TF 1120     COLOR %1:PLOT X+SIN(AN)*SQ(N,
   %1),Y
GC 1130     COLOR %2:PLOT X+SIN(AN)*SQ(N,
   %1),95-Y
YV 1140     AN=AN+SQ(N,%0):IF AN>360 THEN
    AN=AN-360
WG 1150     SQ(N,%2)=AN
EM 1160   NEXT N
MG 1170 NEXT Y
CN 1180 POKE 54286,192
OC 1190 Y=%0:BAR=C4S+256:COL=48
TS 1200 Y2=175:BAR2=BAR+18:COL2=128
UZ 1210 POKE BAR,%0:POKE BAR+16,%0:POKE B
   AR+17,%0
YN 1220 POKE BAR2,%0:POKE BAR2+16,%0:POKE
    BAR2+17,%0
PQ 1230 FOR N=%1 TO 8:POKE BAR+N,COL:COL=
   COL+%2:NEXT N
SC 1240 FOR N=9 TO 15:COL=COL-%2:POKE BAR
   +N,COL:NEXT N
WM 1250 FOR N=%1 TO 8:POKE BAR2+N,COL2:CO
   L2=COL2+%2:NEXT N
GU 1260 FOR N=9 TO 15:COL2=COL2-%2:POKE B
   AR2+N,COL2:NEXT N
BH 1270 MOVE BAR,C0S+Y,17:MOVE BAR2,C1S+Y
   ,17
RV 1280 MOVE BAR,C0S+Y2,17:MOVE BAR2,C1S+
   Y2,17
PC 1290 Y=Y+%1:IF Y=175 THEN Y=%0
DX 1300 Y2=Y2-%1:IF Y2=%0 THEN Y2=175
RI 1310 GOTO 1270
```

A CULT FOLLOWING?

continued

Besides instant Nescafe you should try filter coffee which opens up a whole world of tastes. There are also exotic coffees you can sample; two are Arab (very strong and sweet but with a lovely aroma) and Irish (whisky, cream, coffee and sugar - very smooth and, the more you drink, the smoother it seems).

No serious programmer drinks tea 'cos tea's for wimps and lacks that special zing than can keep you awake for four days in a row. Coffee fans should also try reading the adventures of Garfield the Cat, a coffee connoisseur who likes it when you can make his beverage strong enough to "sit up and bark."

Editor's note: *This article was almost guaranteed inclusion because it mentioned Arthur C Clarke who is the finest Science Fiction writer in the universe bar none. I have been collecting his books for years so if anyone has some of his more obscure stuff they wish to part with, let me know. You know, Avram might just have hit upon something by saying Atari owners are rather fanatical!*

The CLASSIC PD ZONE

A black, circular object has materialized directly in front of our shuttle. There are no apparent markings. It has deposited a crystalline substance over our hull and appears to be feeding from the warp drive. Our power banks are down to 12%. Unless we do something soon, we are going to lose life support. Check the data banks for the latest Zed-9 files ...

ATARI USER CLASSICS

This is a collection of eight games from Atari User magazine, the Database Publications title which ran from May 1985 to November 1988. There are seven BASIC games and one machine code.

SANTA'S GROTTO is a large maze game in which you must guide Santa through his grotto collecting presents along the way. The grotto is very large and takes up a number of screens. You must collect as many presents as possible before the timer counts down to zero. Although Santa moves like he's had too much brandy, this game is quite entertaining. It is certainly challenging and reminds me of Maze Maniac by Antic. A good start to the disk.

Next up is **FENCE BUILDER**. The objective is to build four fences by planting the posts and adding the fence panels. Unfortunately, it's not quite as simple as that. The whole area has been subjected to radiation from the local nuclear station and your tools have become radioactive. They float across the screen and must be avoided at all costs. Fence Builder is a simple game which is initially enjoyable. Long term interest is suspect due to the repetitive gameplay and annoying background music.

FRANK THE FRUIT FIEND is a platform and ladders game. You control Frank and must guide him up and down the ladders collecting fruit along the way. Frank can jump across gaps in the platforms and must complete his task before the time limit, displayed at the bottom of the screen, runs out. This game is like Lode Runner without the baddies. Presentation is similar, with small graphics and slow, smooth movement. Nice game this one! The sound effects and colourful graphics make for a worthy effort. Just be careful to climb down the ladders rather than walk off the platforms or Frank will tumble to the bottom of the screen and you will lose a life. The long initialization period is worth the wait.

GREEDY GUNTHER is another colourful game from the Atari User vault. You must guide Greedy Gunther around the screen as he collects bags of gold. What makes this game so enjoyable is that Greedy Gunther keeps moving. He must avoid the nasties and collect the gold without stopping. It's Pacman gone crazy!

In **SKATE CRAZY** you must skate from the left of the screen to the right whilst avoiding various objects. This one is quite basic and looks dated. Thankfully, however, normal service is resumed with **PAC-MATHS**, an educational game which tests you on the 2-82 times tables. At the top of the screen is a horizontal row of dots with a power pill on the right. Pacman enters from the left, quickly followed by a ghost. The objective is to get Pacman to the power pill by correctly answering the multiplication questions. Get one right and Pacman moves one dot towards the power pill. Get one wrong and Pacman stays where he is. All the time the ghost is slowly closing in. If Pacman manages to reach the power pill, he turns and eats the ghost. A terrific Basic program.

DOCTOR BORIS has you collecting numbers whilst avoiding bombs, skulls, meanies, etc. A wall is left behind you as you travel around the screen so you must be careful not to block yourself in. The action is fast.

The eighth and final title is **FRUITS**, a machine code slot machine. All of the usual elements are included such as spinning reels, holds, nudges, bonuses, etc. With colourful graphics and addictive gameplay, Fruits is great fun to play!

Atari User Classics is a collection of programs which fit together perfectly. Roll back the years and experience the joy of classic type-in software ... without having to spend hours typing in the listings!

CLASSIC PD ZONE RATING: 77%

SHOWDOWN

This disk features six games. First up is the title game, **SHOWDOWN**, a machine code title which takes you back in time to the wild west. Here you must compete against a gunfighter for bags of gold.

The play area is a coral surrounded by cactus trees and rocks. Both players appear in the coral and must race about grabbing the bags of gold which appear randomly. You can either play against a friend or the computer. Bonus points can be picked up for catching the rabbits which dart through the coral.

Each player begins the game with nine lives. You lose a life if you are shot by your opponent. When shot you are frozen for a couple of seconds. There are four computer opponents available, ranging from the slow and methodical Sam to the nasty trigger-happy Billy. Obviously, two player mode is by far the best way to play Showdown.

There are bright graphics, lots of sound effects and a catchy saloon-type tune (which is played on a piano by a little guy at the bottom of the screen). Showdown is a quality title.

The next game on the disk is **TYRANTS OF TORMENT**, Atari User's PD version of Moon Patrol. You are in control of a lunar tank as it trundles along. Aliens swoop down on you

by Stuart Murray

PD ZONE

and obstacles come at you head-on. It is this simultaneous threat from above and ahead which makes Tyrants of Torment a very challenging title. The aliens must be shot and the obstacles jumped over ... at the same time! The action starts slowly but soon hots up with homing missiles coming at you.

The graphics are blocky and colourful. Sound is limited to the occasional explosion. The gameplay is tough as you only have one life and must be very careful from level 2 onwards. Tyrants of Torment is programmed in BASIC and as such is a reasonable conversion of Moon Patrol.

ALIEN AMBUSH is a frantic version of Galaxian. It features various large enemies which split into two when hit. These smaller enemies then bounce around the screen and, if hit, turn into crashing meteors.

The play area is very small, perhaps too small. The ships are bulky and the action soon becomes repetitive. On the plus side, Alien Ambush is a machine code title and is therefore very fast and challenging. When the aliens start bouncing around the screen it is very easy to collide with one of them. This is your basic Invaders meets Galaxian blast. It was programmed in 1982 and looks slightly dated. Worth a few blasts however.

STATION DEFENCE is a BASIC game for 1-4 players. The objective is to defend the space station which runs down the middle of the screen. Enemy rockets approach from both sides and must be destroyed before they reach the station. The graphics are small and basic with very little attention paid to presentation. Station Defence is nothing special and soon becomes tedious to play.

DAM TROUBLE is another Atari User title (they're popping up all over the place in this issue's column!). As pilot of an army helicopter assigned to defend a huge dam, you must destroy approaching missiles before they blow holes in the dam walls. Beneath you on the right is a small town which will be flooded if the dam is destroyed.

Although the graphics are basic, the colours are bland and the sound is limited, Dam Trouble has a certain charm. It would make a great title if it were updated for the 1990s. I like this one.

The final game on Showdown is called **FATAL CONNECTION**. It is an enjoyable maze game with puzzle elements. You must spread a substance throughout the maze and guide two 'plinkers' (small intelligent life forms) to their safety boxes marked "1" and "2" You can also collect special minerals for points. It's a tricky job. Watch out for the toxic plants - touch them and you lose a life.

Unfortunately, there are only two mazes to complete and then you return to the beginning. Nevertheless, what little there is of Fatal Connection is certainly worth playing.

All in all, Showdown is an enjoyable software 6-pack. The star of the show is undoubtedly Showdown itself, with supporting roles for Tyrants of Torment, Dam Trouble and Fatal Connection.

CLASSIC PD ZONE RATING: 78%

SEE-YA!

The power banks are now exhausted. Life support is off-line and we are left with thirty minutes emergency oxygen. There is only one option open to us now...

The disks reviewed were:

266 - ATARI USER CLASSICS

264 - SHOWDOWN

ROM CARTRIDGES

All brand new in original boxes, mostly shrink wrapped

POLE POSITION

Everyone has heard of Pole Position, the racing game that inspired almost every racing game since. It may be the original and some other games may have added features but Pole Position still retains its challenge after many years. One of those games that has exactly the right balance of game play and graphics to make it a classic that will last forever. If it is not in your collection, make amends now!

CLOSEOUT PRICE £1.50 plus 70p p&p

SUPER BREAKOUT

Breakout was the original simple yet totally addictive game and this enhanced version will provide even more addictive fun. Needs paddles.

CLOSEOUT PRICE £1.00 plus 70p p&p

BASIC CARTRIDGE

Some programs, especially some early public domain programs won't run on the XL/XE but they will if you plug in the old version of Basic.

CLOSEOUT PRICE £1.00 plus 70p p&p

DESIGNERS PENCIL

A new programing language that is based around the creation of graphics screens. Difficult to explain but worth a go at this price!

CLOSEOUT PRICE £1.00 plus 70p p&p

DISKS ... DISKS ...

NIBBLER

Slinking through an unknown land Nibbler finds himself in an iridescent world of constant change. As time grows short his body grows longer and he risks running into himself. Can he survive?

CLOSEOUT PRICE 50p plus 50p p&p

RAMPAGE

It's rough and tumble all the way as you control three incredibly nasty characters which bear a remarkable resemblance to King Kong, Godzilla and Wolf-man through an orgy of destruction in Chicago, New York and San Francisco. You have 150 days of destruction in 50 different cities. Time for some revenge!

CLOSEOUT PRICE £1.00 plus 70p p&p

DRUID

Another classic in which, as Last of the Great Druids, you wander through the Dungeons of Acamantor with your mighty Golem by your side on a quest to destroy the four demon princes. As you delve deeper into the dungeons you will find chests containing spells of formidable power to aid you and Pentograms of Life which will heal and revitalise you. Excellent graphics and superb gameplay make this one of the best arcade games.

CLOSEOUT PRICE £1.00 plus 70p p&p

MAXWELL'S DEMON

A simple yet challenging puzzle game which will get you totally addicted. Two games in one for double the fun

CLOSEOUT PRICE 50p plus 50p p&p

CASSETTES

LANCELOT

Level 9 recreate the time of wizards and the Knights of the Round Table in a three part adventure spanning the complete saga of the quest for the Holy Grail. Superbly researched and superbly written this text adventure is full of atmosphere and highly recommended.

CLOSEOUT PRICE £1.00 plus 90p p&p

JUGGLE'S HOUSE

Another neat program for 3 to 6 year olds teachin g the concepts of inside, outside, upper and lower with Juggle's house and toyshop

CLOSEOUT PRICE £1.00 plus 70p p&p

BATTALION COMMANDER

An exciting real-time tactical game with you as lieutenant colonel in charge of an entire armoured battalion. Choose from five different scenarios from a training mission against a Soviet tank battalion to tough assignments against the Chinese. You can adjust the relative strengths of your forces and the opposition and choose from 40 different maps and 5 different scenarios.

CLOSEOUT PRICE £1.00 plus 70p p&p

BARGAIN CASSETTES

Your choice of
any 5 cassettes for £1.50 plus 80p p&p
any 10 cassettes for £2.00 plus £1.20 p&p

180
Eight opponents, digitised speech, two player option. live joystick control, full matchplay scoring, superb playability.

BOMB FUSION
A terrorist gang has planted bombs in the Nuclear Processing Plant and you have to go in to save the plant

DESPATCH RIDER
Join the growing band of street demons who terrify the population of the big cities to get the parcels through.

FEUD
You must "out-spell" your rival Wizard. Tread carefully as strange things can happen in this game of magic

FOOTBALL MANAGER
Everything you might want in a managerial simulation. Far too many features to describe, but you won't be disappointed

GHOSTBUSTERS
At this very moment hundreds of ghosts are making their way to the infamous spook central. Only you can save the world from disaster

GUN LAW
Four months of bloody alien attacks have taken their toll. You are left to fight alone against ruthless and bloodthirsty killers with just a single machine gun

HENRY'S HOUSE
Little Henry has shrunk and must navigate his way through the royal household to find the cure. Voted one of the all time great games

INVASION
Mobilize your units and prepare for battle. This all action space conflict requires skill, strategy and tactics.

KIKSTART
The ultimate off-road motorbike scramble. Guide your rider over the obstacles in this great game for 1 or 2 players

LOS ANGELES SWAT
Rescue the hostages from the terrorist gangs holding out in West L.A. Clean up the streets. Blow away the bad guys

MASTER CHESS
An excellent chess simulation with all the correct moves, various openings, in fact everything to keep you challenged

MILK RACE
Cycling 1,000 miles is no mean feat - and you could end up feeling pretty exhausted by the time you've finished

MR DIG
An old favourite in which Mr Dig has to dig for hidden food supplies in the 'Meanie' territory below ground.

NINJA
Blasts the belt off all other martial arts games! It says on the inlay! Someone sure reckons this is the best punching, kicking, ducking and diving game of all

ON CUE
A challenging real life simulation which combines Pool and Snooker on the same cassette. An absolute must for both enthusiasts and beginners alike.

PANTHER
Save the last humans on Xenon. Take your ground attack ship through this 3D scrolling mega shoot-em-up with great graphics and unbelievable soundtrack

PENGON
Can you save Penguin Willy from the ferocious mutant sea lions? Stun them by knocking them against the walls or crush them with sliding ice blocks

PLASTRON
Take your place in a small band of pirates out to steal fossil fuels from the biggest corporation in the galaxy.

PROTECTOR
Assigned to the US Army Helicopter Training School your aim is to become the best chopper pilot in the West

REVENGE II
The Mutated 90 foot high, laser spitting death camels have rebelled against their captors the Zzyaxians and are out for revenge! A Jeff Minter classic

ROCKFORD
The only true arcade version of the classic game Boulderdash. Explore 4 levels on each of 5 different worlds

SIDEWINDER II
It is 27 years since the final battle of the war with the aliens. All this is about to change. Step aboard your craft to defend mankind in this space blast

SPEED HAWK
Defend the ring worlds of your solar system from space pirates. Another of the great space games

SPEED ZONE
Enter the Speedzone in a frantic defence against alien forces. A survey ship comes under attack and your "Starfire" class attack craft is launched

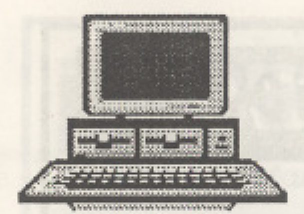
STAR RAIDERS
What more can be said. Probably the best computer game in the world - ever!

TAIL OF BETA LYRAE
Our A-Z of Atari Software series says "The ultimate 'Scramble' clone with superb graphics and music."

TWILIGHT WORLD
Equipped with the latest in anti-gravity pods and Laser weaponry, battle your way through each of eleven dungeons

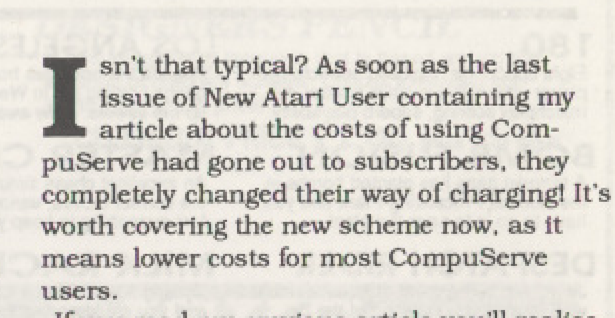
UNIVERSAL HERO
Only seven seconds left to save the planet! Universal Hero has to save his skin and everybody else's by finding bits to repair a shuttle

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JOURNEY INTO CYBERSPACE

John S Davison tackles the Internet in an ultimate quest for the fabled Information Superhighway



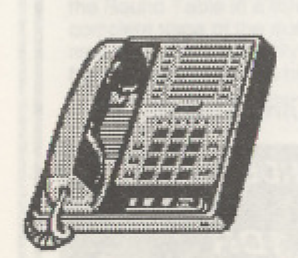
Isn't that typical? As soon as the last issue of New Atari User containing my article about the costs of using CompuServe had gone out to subscribers, they completely changed their way of charging! It's worth covering the new scheme now, as it means lower costs for most CompuServe users.

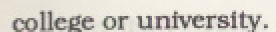
If you read my previous article you'll realise that working out the real cost could be just a little complicated. CompuServe have now simplified matters considerably by combining many of the separate elements which were charged at different rates and billing them all at a single lower rate. Details are as follows - prices are approximate as they depend on dollar exchange rates.

FIVE HOURS "FREE"

Monthly subscription is still £6.50. For this you now get five hours "free" access to what were Basic, Extended, Internet, and Electronic Mail services, i.e. virtually all of CompuServe's services. As long as you don't exceed five hours connect time in a month, then that's all you pay. Additional time over five hours is now billed at $2.95 per hour (about 3p per minute, down from about 5p per minute).

If you regularly use the system for more than 5 hours a month you can elect to pay an extra £10.00 per month and get an additional 15 hours added to your "free" allowance. If you still need additional time beyond this it's charged at just $1.95 per hour (about 2p per minute). You'll also be running up a gigantic phone bill, unless you're one of the lucky people able to get free connection via your





college or university.

Also, the 90 message electronic mail limit has been abolished, as have the charges based on message length and surcharges for incoming messages from outside CompuServe (e.g. the Internet). Transmitting and receiving mail is now based on connect time like everything else. The old "Executive" services and "Premium" research databases (mainly for business use) still carry extra surcharges whenever you use them, but some now cost less. This is much better than the old system as it's now fairly easy to keep track of how much your bill will be.

Another major change is that CompuServe's London access node has just doubled its communication speed from 14.4Kbps to 28.8Kbps, with others around the country to follow by year end. So you can now download files in half the time it took previously. Not long ago CompuServe would have charged extra for this, as they also levied speed related connect time charges (most unfairly, I always thought). I've now switched to this speed using my new V34 modem, and it makes a big difference to file download times and other bandwidth hungry operations such as exploring the Internet's World Wide Web sites.

COMPETITION

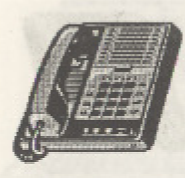
All of the above have been caused by one thing - competition. Or more precisely, a certain gentleman called Bill Gates. Some time ago he announced he'd be setting up a major new on-line service called the MicroSoft Network (MSN), and that he'd be bundling software for accessing it into his new Windows 95 PC operating system. This scared CompuServe rigid, and they've reacted over the last year or so by dramatically lowering charges and improving services to persuade their subscribers not to defect to MSN. And, there's much more in the pipeline apparently. I must say the benefits to users have been quite spectacular, and as a regular user I'm very pleased with the changes.

Microsoft now have a real fight on their hands, as MSN is now far more expensive than CompuServe (in the UK anyway), has slower access speeds, and far fewer services - for instance there's no World Wide Web access yet. No doubt they'll try to catch up, so the battle should become very interesting over the next year or so.

USENET AND NEWSGROUPS

After e-mail the next most popular Internet application is probably "Usenet". This is like a much bigger, wilder version of CompuServe's own forum service, as described in the last issue. It's a massive collection of bulletin boards and conference areas, each set up to cover a particular topic, and classified by subject type into a "newsgroup". There are a huge number of them - I've seen the estimate put as high as 12,000 - covering every topic imaginable, including a good number of Atari related subjects.

Anyone can post messages on these, and the postings are distributed throughout the world by a cascading chain of News Servers, with access to your local one supplied by your service provider. So, if you post a technical question on your local server about Atari disk



drives it would soon find its way cascading out onto News Servers around the world, and could potentially be read by millions of other Internet users. Anyone reading it can post a reply, which again will propagate around the world in the same way. Collections of related comments, replies, discussion, etc. on a particular subject are linked together into a "thread", and you can access a thread and follow a discussion as it evolves. Each newsgroup typically carries many threads at once, covering different aspects of its main topic.

Before you ask, I'll tell you that Usenet also includes topics of a somewhat, shall we say, lewd nature. However, this DOESN'T mean the Internet is full of pornography that leaps out of the screen at you without provocation, as the mass media would have you believe. Yes, there IS pornographic material on the Internet and you'll find it if you look for it - much like any other form of pornography. The difference is that children may be tempted to look for it, and could access it without anyone questioning their actions. If this worries you as a parent, then there's a simple answer - supervise your children's online activities.

CompuServe reduce the chance of anyone finding "unsuitable" newsgroup material by excluding the names of known potentially offensive resources from their system where possible. However, if you know the name of a resource you can still get to it even though it isn't listed. Some schools with Internet access now have "firewall" systems installed, which can totally block access to specific Internet resources deemed to be unsuitable, whatever form they take. Similar products for use on home systems are now becoming available, but don't hold your breath waiting for Atari versions.

Internet newsgroups are often unmoderated, which means that no-one polices their content, so you might come across foul language and other material which might offend amongst other perfectly acceptable material. In contrast, CompuServe forums are moderated, so any offensive material can be screened out before the public sees it. OK, it's a form of censorship, but CompuServe like to maintain a squeaky clean image as a service anyone in the family can use. Generally speaking, the Internet is uncensored.

NEWSGROUP CATEGORIES

There are two types of newsgroups, "universal" and "alternative". Universal groups are carried by all News Servers worldwide. Alternative groups, however, may be local and postings to them may or may not get passed on to other News Servers. Newsgroups are defined by a hierarchical name, consisting of naming elements separated by full stops. The topic covered is defined more precisely as you move from left to right in the name. The leftmost part defines a general category, and the universal groups include the following naming conventions:

- comp - covers anything about computers
- news - anything concerning newsgroups and Usenet itself
- sci - covers science and scientific knowledge
- soc - anything on social issues
- rec - encompasses recreational, artistic, or other creative activities
- talk - includes discussions and debates

Lower levels of the name are less rigidly defined, but become familiar with a little experience. For example "comp.sys.atari.8bit" is a newsgroup about computing (comp), covering computer systems (sys), the Atari systems in particular (atari), and specifically the 8-bit machines (8bit).

Similarly there's "comp.sys.atari.st" and "comp.sys.atari.st.tech" which specifically cover ST general and ST technical topics respectively. There's also one called "comp.sys.atari.announce" encompassing Atari related announcements (not much in here these days!), and another called "comp.sys.atari.advocacy" in which users argue the merits of Atari versus other systems. Atari references also crop up in other major newsgroup categories, for instance "rec.games.video.atari".

Alternative newsgroups start with "alt", and here you'll find such Atari entries as "alt.atari.jaguar"; "alt.games.lynx"; and "alt.atari.2600" amongst thousands of others covering all kinds of topics.

Atari users can get easy access to newsgroups through CompuServe. As with e-mail, newsgroups can be accessed via an ASCII terminal program. I've successfully searched for and retrieved Atari related newsgroup material using Flash, an ancient communications program from Antic. After logging onto CompuServe via this, everything is done via a fairly primitive ASCII menu system plus a few easy to use commands. It's not nearly as user friendly as the PC system with graphical user interface I normally use, but it does work. 8-bit users should also be able to access newsgroups in the same way, using an 8-bit ASCII terminal communications program. One of these days I'll get out my trusty old 130XE and try it.

NAU CONTACTS

My invitation to New Atari User readers to contact me via Internet e-mail has so far been taken up by only two people. The first was John Young, who's written for NAU in the past and who's now a PhD student at Cambridge University. He mentioned several Atari related areas he'd found on the Internet, which I've included in the newsgroup examples earlier in this article.

The second was Ann O'Driscoll, another NAU contributor, and I was intrigued to hear she was about to leave CompuServe and connect into the Internet via another service provider. The reason was communications costs. Ann lives in Ireland, where there are apparently no direct CompuServe network access points. She had to dial in via Infonet-Euro which pushed up her communication costs to over £5.00 per hour, plus CompuServe's charges on top of this. She's now connected via Ireland On-Line, for a flat rate monthly charge plus local phone connection.

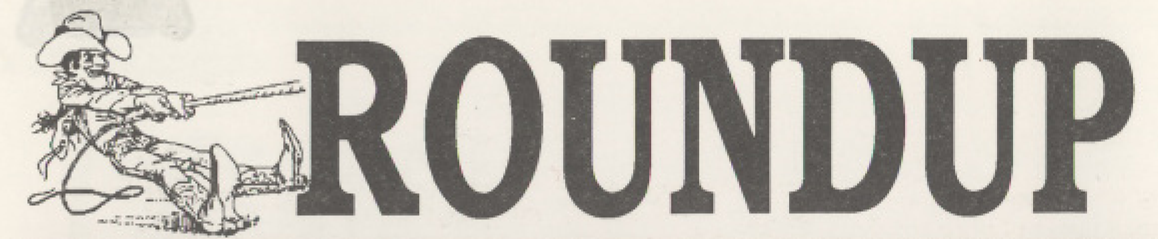
Ann and her son Ken have also been exploring the Internet looking for Atari related sites. She's come up with a list of World Wide Web sites which may be of interest. I've not had chance to check them out yet, but will report on them in these pages when I've taken a look.

If you have any comments to make on using your Atari with CompuServe or the Internet (or you just want to say hello) please drop me a note. My e-mail address is

100256.1577@compuserve.com

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ST PUBLIC DOMAIN



ROUNDUP

MAY THE FORCE BE WITH YOU

But let's hope it doesn't take you!

This issue in ST Public Domain Roundup we take a trip to the stars and examine UFO and science fiction disks for your ST. Do you believe?

by Stuart Murray

ST PHONE HOME

If you are looking for information on UFO's then check out **THE X-FILES**. Not the TV series ... the ST disk! This title features a collection of fifteen articles covering a variety of UFO-related topics.

Mountain View, a shareware text viewer, is provided for viewing the articles on-screen. There are no print or save facilities in this shareware version so you must print the articles with a word processor. It will take you quite some time to print all fifteen articles.

Subjects covered include time and space, UFO sightings, varieties of alien beings, interpretation of anomalous structures on the moon, UFO crashes, etc. There are also a number of personal accounts and theories, some of which border on paranoia.

One of the many highlights on X-Files is an article describing the Alien Defence Shield, known simply as 'The Cage'. This is a device which prevents abduction by aliens. A transcript of an all-night battle against abduction is included! There is also a very large text file giving extracts from the book 'A Survivor's Guide to Armageddon' by Robert Westbrook (1993). Nine chapters are included and make for a very interesting read. The early chapters cover God and the Bible, with interpretation of events which could be linked to UFO's. The other chapters examine the various types of alien, UFO research centres, The Hive theory, etc. You will cringe when reading Westbrook's theory that Bill Clinton was abducted in England and Hilary is his keeper! However, much of the rest is quite plausible to the open minded.

John Lear's conspiracy theory is very interesting. Amongst other things, he claims that the US government has been in contact with greys (one of the types of alien) for twenty years and that there have been UFO cover-ups since 1939, including a 1964 meeting between the US government and three saucers. Lear concludes his article with the following statement, *"The best advice I can give you is this: Next time you see a flying saucer and are awed by its obvious display of technology and gorgeous lights of pure colour - RUN LIKE HELL!"*

Just remember to whip out your Camcorder first!

The X-Files is a disk for the open minded. Even then, you will not accept everything included. But no matter what your stance on UFO's, you will certainly find much to think about. Fact or fiction? You will have to judge for yourself. Just be careful who you discuss it with. After all, they ARE among us!

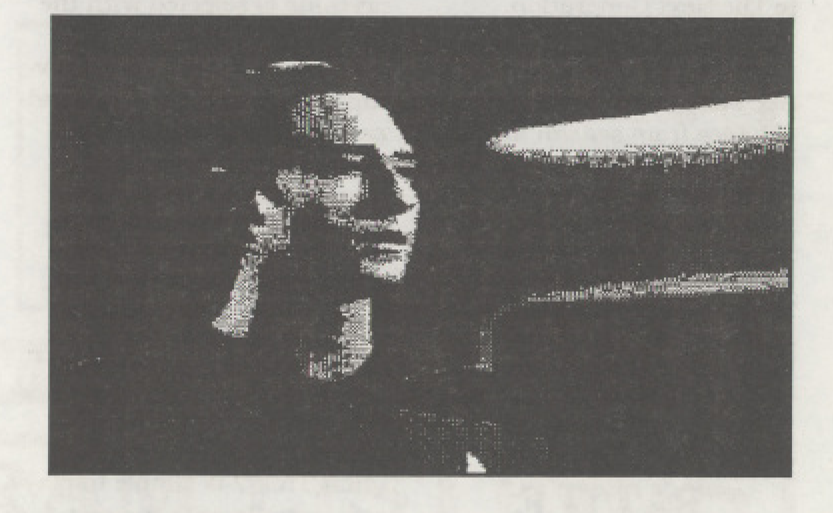
ST SCI-FI

On a lighter subject, there are many Star Trek related disks for the ST. **THE WORLD OF STAR TREK** is a collection of interviews, profiles and articles relating to the popular television series and movies.

This disk was produced to celebrate Star Trek's 25th Anniversary in 1991. There are profiles of the main characters in the original series and The Next Generation. There are also interviews with the actors, e.g. Leonard Nimoy, James Doohan, Patrick Stewart, Brent Spiner, etc. The many features on the disk include Star Trek facts, fan clubs, comics, merchandise, etc.

Also included is the Star Trek Slideshow, featuring sixteen pictures from the show - mainly digitized stills from Next Generation episodes.





The World of Star Trek was produced in 1990 and although the series has moved on since then the articles are still worth a read, especially those on the original series. You also get the chance to use a Star Trek insignia mouse pointer!

ENGAGE!

Another text-based disk is **STAR TREK STORIES**. This time there are five long articles.

'Deep Space 9' is a transcript of a 1992 convention

address by Majel Barrett Roddenberry. It includes the background on the story and characters of DS9 plus a Star Trek question and answer session. *'Not the Technical Manual'* examines warp drive, subspace, transporters, cloaking, etc. *'Star Trek Ships'* by D. Joseph Creighton is a list of all Star Trek ships up to 1993.

Next up is *'Star Trek TNG List of Lists'*. Written in 1992, this very long article gives list after list on subjects relating to The Next Generation. There are episode listings for seasons 1-6, ranks and insignia, stardates, cast listings, changes from season to season, major species appearances, etc., etc. The final file on the disk is a Star Trek story entitled *'Q and A'*.

Altogether, a gem of a disk for any Trekker! When inserting the disk, don't forget to say "ENGAGE"!

BATTLE STATIONS!

STAR TREK 2 (1MB required) is a colourful STOS version of the popular search-find-destroy computer game. Your task is to rid the Galaxy of the plague of Klingons and to save the Federation from complete and utter destruction. You must travel through the quadrants destroying Klingons with your phasers and torpedoes. You can refuel at starbases and also use your navigation computer, shields, probes and scanners to out-smart the enemy.

The screen displays the view from the deck of the Enterprise. Around this view are positioned the instruments with which you control the ship. There is a compass for selecting your course, a grid for scanner display, etc. Everything is selected with the mouse pointer.

The gameplay involves moving the Enterprise from quadrant to quadrant blasting Klingons and docking with starbases. Digitized sound effects are used throughout and are complimented by digitized speech, e.g. "*battle stations*" and "*switch scanners*". The samples are taken from the original TV series and make up for the rather average graphics.

Star Trek 2 is simple to play and compliments the text-based disks above.

USE THE FORCE

To wrap things up I have chosen a sci-fi demo. **STAR WARS** is a digitized graphics and sound demo based on the classic movie.

A small box in the middle of the screen displays clips from the movie while various samples are played. It begins with the Star Wars title picture and main theme. Next, Darth Vader and Obi-Wan Kenobi battle it out to the death. There are then battle scenes which culminate in the destruction of the Death Star. Finally, R2-D2 and C-3PO say goodbye.

The data loads from disk in stages and so there are brief pauses in the action. The movie clips are in mono and last about two seconds each. The digitized sound effects and speech create a real movie atmosphere. The battle scenes are particularly impressive. Any fan of Star Wars will enjoy this disk!

ROUNDUP RATINGS:

ST987 THE X-FILES	80%
ST717 WORLD OF STAR TREK	78%
ST940 STAR TREK STORIES	78%
ST947 STAR TREK 2 (1MB)	68%
ST647 STAR WARS	72%

contact ... contact ... contact ...

FOR SALE

PRINTERS: Atari 1027 LQ Printer, excellent working order, boxed with leads, manual etc., £25; Atari 1020 Plotter, not working, cogs not meshing, £10; Ballblazer and Rescue on Fractulas disks, free to good home! Buyer collects or pays postage. Ring Chris on 01352 758585 (Mold)

COLLECTION: My father recently passed away and as he was a keen Atari supporter I would like his equipment to find a good home. Included is an Atari 130XE, 800XL, CX85 Numeric Keypad, 1010 tape decks (2), 1050 disk drives (3), XEP80 interface, joysticks, Ferguson monitor, Microline u82A printer, Star LC-10 printer, Prism printer, software including AtariWriter 80, Print Shop. Also many disks from Page 6 Library, most copies of Page 6 magazine and New Atari User. Offers invited. Please contact Mrs Helen Parsons on Cardiff 01222 584386 during the day or 01222 513440 in the evenings

PRINTER: 1029 printer in good working order, boxed with manual, lead, reinkable ribbon, some software and paper, £70 plus p&p. Tel. 01903 232723

SOFTWARE: Atari disks and cassettes - hundreds of original games from 90p each. Write for a list to Paul, 17, Spring Road, Clifton, Shefford, Bedfordshire SG17 5RE

SURPLUS CLEAROUT: 800XL, 1050 disk drive, tape deck, 50 disks of software, £60 o.n.o.; tapes and disks, boxed originals from 30p and £2 respectively; 2600/7800 ROMS, £3; Romscanner, plug in up to 10 ROMS at once on 2600, £5; ST software boxed originals from 50p to £5, 100+ titles something for every interest. Send A4 SAE to Mr D. Loughton, 34 Collindale Avenue, Erith, Kent DA8 1EE

PRINTER CABLE: ICD Printer Connection - 3m cable connects an Atari 8-bit to any printer with a standard 'Centronics' port (no additional power source required). Complete with instructions, £16 inc. postage. Write to Paul, 17, Spring Road, Clifton, Shefford, Bedfordshire SG17 5RE

TAPES: 30 cassette games, £15. Phone Jason on 01778 426409

WANTED

CHESS: Wanted Parker Chess and Sargon II on disk or cartridge preferably. Tel. 01768 863567

ASSEMBLY: MAC/65 assembler wanted, books on programming in machine code, Mapping The Atari (Revised), De Re Atari, also any Infocom, Level 9 or Scott Adams adventures on disk or cassette. Tel. 01785 48020 and ask for Daniel

M.U.L.E.: On disk wanted. Please write to John Trueman, 30 Mason Crescent, Penn, Wolverhampton WV4 4DU

VARIOUS: The following wanted: PAGE 6 Issues 1 to 7; any of the following, preferably on disk - Rally Speedway (ROM), Murder on The Zinderneuf, Fruit Picking, Winter Olympiad 88, Space Lobsters, Little Devil, Robot Knights, A Day At The Races. Please phone Jason on 01778 426409

FREE TO SUBSCRIBERS

The CONTACT column is free of charge to subscribers who wish to sell their equipment or contact other readers. Space is limited so we request that entries be kept as short as possible. Extremely long entries may be heavily edited or ignored. Send your CONTACT notice on a separate sheet of paper (not as part of a letter) to:

CONTACT, PAGE 6 PUBLISHING, STAFFORD, ST16 1DR

FOR SALE ... WANTED ... PEN PALS ... ADVICE ... HELP

PROGRAM LISTINGS

Certain program listings which are too long to include in the magazine may be obtained free of charge as printed listings to type in. All programs are, however, included on the Issue Disk which is available with each issue. Remember this disk also includes BONUS PROGRAMS which do not appear in the magazine. If you would like the type-in listings please write or telephone indicating which listings you require. Please note that there are not necessarily extra listings for every magazine.

Write to LISTINGS, NEW ATARI USER, P.O. BOX 54, STAFFORD, ST16 1DR or telephone 01785 241153